

Figure 1

GATCAAACCTTCTTTCCATTGAGAGTCCTCTGATTGAGATTTAATGTTAACATTTTGGAAGACAGTATTCAGAAAAAAATTTCC
TTAATAAAAATACAACCTCAGATCCTTCAAATATGAACTGGTTGGGGAATCTCCATTTTTCAATATTATTTCTTCTTTGTTTTTC
TTGCTACGTATAATTATTAATATCCTGACTAGGTTGTGGTTGGAGGGTTATTACTTTTCATTTTACCATGCAGTCCAAATCTAAAC
TGCTTCTACTGATGGTTTACAGCATTCTGAGATAAGAATGGTACATCTAGAGAACATTTGCCAAAGGCCTAAGCACAGCAAAGGAA
AATAAACACAGAATATAATAAAATGAGATAATCTAGCTTAAACTATAACTTCCTCTTTAGAACTCCCAACCACATTTGGATC

Figure 1

Title: NUCLEIC ACID AND CORRESPONDING PROTEIN
ENTITLED 101P3A41 USEFUL IN TREATMENT AND
DETECTION OF CANCER

First Inventor: Daniel E. H. AFAR, et al

Application No.: To Be Assigned - Docket No. 511582002420

Sheet 2 of 50

FIG. 2A

5'		9		18		27		36		45		54						
	CAG	AGA	GGC	TGT	ATT	TCA	GTG	CAG	CCT	GCC	AGA	CCT	CTT	CTG	GAG	GAA	GAC	TGG
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		63		72		81		90		99		108						
	ACA	AAG	GGG	GTC	ACA	CAT	TCC	TTC	CAT	ACG	GTT	GAG	CCT	CTA	CCT	GCC	TGG	TGC
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
		117		126		135		144		153		162						
	TGG	TCA	CAG	TTC	AGC	TTC	<u>ATG</u>	ATG	GTG	GAT	CCC	AAT	GGC	AAT	GAA	TCC	AGT	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
						M	M	V	D	P	N	G	N	E	S	S		
		171		180		189		198		207		216						
	GCT	ACA	TAC	TTC	ATC	CTA	ATA	GGC	CTC	CCT	GGT	TTA	GAA	GAG	GCT	CAG	TTC	TGG
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	A	T	Y	F	I	L	I	G	L	P	G	L	E	E	A	Q	F	W
		225		234		243		252		261		270						
	TTG	GCC	TTC	CCA	TTG	TGC	TCC	CTC	TAC	CTT	ATT	GCT	GTG	CTA	GGT	AAC	TTG	ACA
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	L	A	F	P	L	C	S	L	Y	L	I	A	V	L	G	N	L	T
		279		288		297		306		315		324						
	ATC	ATC	TAC	ATT	GTG	CGG	ACT	GAG	CAC	AGC	CTG	CAT	GAG	CCC	ATG	TAT	ATA	TTT
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	I	I	Y	I	V	R	T	E	H	S	L	H	E	P	M	Y	I	F
		333		342		351		360		369		378						
	CTT	TGC	ATG	CTT	TCA	GGC	ATT	GAC	ATC	CTC	ATC	TCC	ACC	TCA	TCC	ATG	CCC	AAA
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	L	C	M	L	S	G	I	D	I	L	I	S	T	S	S	M	P	K
		387		396		405		414		423		432						
	ATG	CTG	GCC	ATC	TTC	TGG	TTC	AAT	TCC	ACT	ACC	ATC	CAG	TTT	GAT	GCT	TGT	CTG
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	M	L	A	I	F	W	F	N	S	T	T	I	Q	F	D	A	C	L
		441		450		459		468		477		486						
	CTA	CAG	ATT	TTT	GCC	ATC	CAC	TCC	TTA	TCT	GGC	ATG	GAA	TCC	ACA	GTG	CTG	CTG
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	L	Q	I	F	A	I	H	S	L	S	G	M	E	S	T	V	L	L
		495		504		513		522		531		540						
	GCC	ATG	GCT	TTT	GAC	CGC	TAT	GTG	GCC	ATC	TGT	CAC	CCA	CTG	CGC	CAT	GCC	ACA
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	A	M	A	F	D	R	Y	V	A	I	C	H	P	L	R	H	A	T
		549		558		567		576		585		594						
	GTA	CTT	ACG	TTG	CCT	CGT	GTC	ACC	AAA	ATT	GGT	GTG	GCT	GCT	GTG	GTG	CGG	GGG
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	V	L	T	L	P	R	V	T	K	I	G	V	A	A	V	V	R	G
		603		612		621		630		639		648						
	GCT	GCA	CTG	ATG	GCA	CCC	CTT	CCT	GTC	TTC	ATC	AAG	CAG	CTG	CCC	TTC	TGC	CGC
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	A	A	L	M	A	P	L	P	V	F	I	K	Q	L	P	F	C	R

Title: NUCLEIC ACID AND CORRESPONDING PROTEIN
ENTITLED 101P3A41 USEFUL IN TREATMENT AND
DETECTION OF CANCER

First Inventor: Daniel E. H. AFAR, et al

Application No.: To Be Assigned - Docket No. 511582002420

Sheet 3 of 50

FIG. 2B

TCC	AAT	ATC	CTT	TCC	CAT	TCC	TAC	TGC	CTA	CAC	CAA	GAT	GTC	ATG	AAG	CTG	GCC
S	N	I	L	S	H	S	Y	C	L	H	Q	D	V	M	K	L	A
TGT	GAT	GAT	ATC	CGG	GTC	AAT	GTC	GTC	TAT	GGC	CTT	ATC	GTC	ATC	ATC	TCC	GCC
C	D	D	I	R	V	N	V	V	Y	G	L	I	V	I	I	S	A
ATT	GGC	CTG	GAC	TCA	CTT	CTC	ATC	TCC	TTC	TCA	TAT	CTG	CTT	ATT	CTT	AAG	ACT
I	G	L	D	S	L	L	I	S	F	S	Y	L	L	I	L	K	T
GTG	TTG	GGC	TTG	ACA	CGT	GAA	GCC	CAG	GCC	AAG	GCA	TTT	GGC	ACT	TGC	GTC	TCT
V	L	G	L	T	R	E	A	Q	A	K	A	F	G	T	C	V	S
CAT	GTG	TGT	GCT	GTG	TTC	ATA	TTC	TAT	GTA	CCT	TTC	ATT	GGA	TTG	TCC	ATG	GTG
H	V	C	A	V	F	I	F	Y	V	P	F	I	G	L	S	M	V
CAT	CGC	TTT	AGC	AAG	CGG	CGT	GAC	TCT	CCG	CTG	CCC	GTC	ATC	TTG	GCC	AAT	ATC
H	R	F	S	K	R	R	D	S	P	L	P	V	I	L	A	N	I
TAT	CTG	CTG	GTT	CCT	CCT	GTG	CTC	AAC	CCA	ATT	GTC	TAT	GGA	GTG	AAG	ACA	AAG
Y	L	L	V	P	P	V	L	N	P	I	V	Y	G	V	K	T	K
GAG	ATT	CGA	CAG	CGC	ATC	CTT	CGA	CTT	TTC	CAT	GTG	GCC	ACA	CAC	GCT	TCA	GAG
E	I	R	Q	R	I	L	R	L	F	H	V	A	T	H	A	S	E
CCC	TAG	GTG	TCA	GTG	ATC	AAA	CTT	CTT	TTC	CAT	TCA	GAG	TCC	TCT	GAT	TCA	GAT
P	*																
TTT	AAT	GTT	AAC	ATT	TTG	GAA	GAC	AGT	ATT	CAG	AAA	AAA	AAT	TTC	CTT	AAT	AAA
AAA	TAC	AAC	TCA	GAT	CCT	TCA	AAT	ATG	AAA	CTG	GTT	GGG	GAA	TCT	CCA	TTT	TTT
CAA	TAT	TAT	TTT	CTT	CTT	TGT	TTT	CTT	GCT	ACA	TAT	AAT	TAT	TAA	TAC	CCT	GAC
TAG	GTT	GTG	GTT	GGA	GGG	TTA	TTA	CTT	TTC	ATT	TTA	CCA	TGC	AGT	CCA	AAT	CTA

Title: NUCLEIC ACID AND CORRESPONDING PROTEIN
ENTITLED 101P3A41 USEFUL IN TREATMENT AND
DETECTION OF CANCER

First Inventor: Daniel E. H. AFAR, et al

Application No.: To Be Assigned - Docket No. 511582002420

Sheet 4 of 50

FIG. 2C

1359	1368	1377	1386	1395	1404
AAC TGC TTC	TAC TGA TGG	TTT ACA GCA	TTC TGA GAT	AAG AAT GGT	ACA TCT AGA
1413	1422	1431	1440	1449	1458
GAA CAT TTG	CCA AAG GCC	TAA GCA CGG	CAA AGG AAA	ATA AAC ACA	GAA TAT AAT
1467	1476	1485	1494	1503	1512
AAA ATG AGA	TAA TCT AGC	TTA AAA CTA	TAA CTT CCT	CTT CAG AAC	TCC CAA CCA
1521	1530	1539	1548	1557	1566
CAT TGG ATC	TCA GAA AAA	TGC TGT CTT	CAA AAT GAC	TTC TAC AGA	GAA GAA ATA
1575	1584	1593	1602	1611	1620
ATT TTT CCT	CTG GAC ACT	AGC ACT TAA	GGG GAA GAT	TGG AAG TAA	AGC CTT GAA
1629	1638	1647	1656	1665	1674
AAG AGT ACA	TTT ACC TAC	GTT AAT GAA	AGT TGA CAC	ACT GTT CTG	AGA GTT TTC
1683	1692	1701	1710	1719	1728
ACA GCA TAT	GGA CCC TGT	TTT TCC TAT	TTA ATT TTC	TTA TCA ACC	CTT TAA TTA
1737	1746	1755	1764	1773	1782
GGC AAA GAT	ATT ATT AGT	ACC CTC ATT	GTA GCC ATG	GGA AAA TTG	ATG TTC AGT
1791	1800	1809	1818	1827	1836
GGG GAT CAG	TGA ATT AAA	TGG GGT CAT	ACA AGT ATA	AAA ATT AAA	AAA AAA AAA
1845	1854	1863	1872	1881	1890
GAC TTC ATG	CCC AAT CTC	ATA TGA TGT	GGA AGA ACT	GTT AGA GAG	ACC AAC AGG
1899	1908	1917	1926	1935	1944
GTA GTG GGT	TAG AGA TTT	CCA GAG TCT	TAC ATT TTC	TAG AGG AGG	TAT TTA ATT
1953	1962	1971	1980	1989	1998
TCT TCT CAC	TCA TCC AGT	GTT GTA TTT	AGG AAT TTC	CTG GCA ACA	GAA CTC ATG
2007	2016	2025	2034	2043	2052
GCT TTA ATC	CCA CTA GCT	ATT GCT TAT	TGT CCT GGT	CCA ATT GCC	AAT TAC CTG
2061	2070	2079	2088	2097	2106
TGT CTT GGA	AGA AGT GAT	TTC TAG GTT	CAC CAT TAT	GGA AGA TTC	TTA TTC AGA
2115	2124	2133	2142	2151	2160
AAG TCT GCA	TAG GGC TTA	TAG CAA GTT	ATT TAT TTT	TAA AAG TTC	CAT AGG TGA
2169	2178	2187	2196	2205	2214
TTC TGA TAG	GCA GTG AGG	TTA GGG AGC	CAC CAG TTA	TGA TGG GAA	GTA TGG AAT
2223	2232	2241	2250	2259	2268
GGC AGG TCT	TGA AGA TAA	CAT TGG CCT	TTT GAG TGT	GAC TCG TAG	CTG GAA AGT
2277	2286	2295	2304	2313	2322
GAG GGA ATC	TTC AGG ACC	ATG CTT TAT	TTG GGG CTT	TGT GCA GTA	TGG AAC AGG
2331	2340	2349	2358	2367	2376
GAC TTT GAG	ACC AGG AAA	GCA ATC TGA	CTT AGG CAT	GGG AAT CAG	GCA TTT TTG

Title: NUCLEIC ACID AND CORRESPONDING PROTEIN
ENTITLED 101P3A41 USEFUL IN TREATMENT AND
DETECTION OF CANCER

First Inventor: Daniel E. H. AFAR, et al

Application No.: To Be Assigned - Docket No. 511582002420

Sheet 5 of 50

FIG. 2D

2385	2394	2403	2412	2421	2430
CTT CTG AGG	GGC TAT TAC	CAA GGG TTA	ATA GGT TTC	ATC TTC AAC	AGG ATA TGA
2439	2448	2457	2466	2475	2484
CAA CAG TGT	TAA CCA AGA	AAC TCA AAT	TAC AAA TAC	TAA AAC ATG	TGA TCA TAT
2493	2502	2511	2520	2529	2538
ATG TGG TAA	GTT TCA TTT	TCT TTT TCA	ATC CTC AGG	TTC CCT GAT	ATG GAT TCC
2547	2556	2565	2574	2583	2592
TAT AAC ATG	CTT TCA TCC	CCT TTT GTA	ATG GAT ATC	ATA TTT GGA	AAT GCC TAT
2601	2610	2619	2628	2637	2646
TTA ATA CTT	GTA TTT GCT	GCT GGA CTG	TAA GCC CAT	GAG GGC ACT	GTT TAT TAT
2655	2664	2673	2682	2691	2700
TGA ATG TCA	TCT CTG TTC	ATC ATT GAC	TGC TCT TTG	CTC ATC ATT	GAA TCC CCC
2709	2718	2727	2736	2745	2754
AGC AAA GTG	CCT AGA ACA	TAA TAG TGC	TTA TGC TTG	ACA CCG GTT	ATT TTT CAT
2763	2772	2781	2790	2799	2808
CAA ACC TGA	TTC CTT CTG	TCC TGA ACA	CAT AGC CAG	GCA ATT TTC	CAG CCT TCT
2817	2826	2835	2844	2853	2862
TTG AGT TGG	GTA TTA TTA	AAT TCT GGC	CAT TAC TTC	CAA TGT GAG	TGG AAG TGA
2871	2880	2889	2898	2907	2916
CAT GTG CAA	TTT CTA TAC	CTG GCT CAT	AAA ACC CTC	CCA TGT GCA	GCC TTT CAT
2925	2934	2943	2952	2961	2970
GTT GAC ATT	AAA TGT GAC	TTG GGA AGC	TAT GTG TTA	CAC AGA GTA	AAT CAC CAG
2979	2988	2997	3006	3015	3024
AAG CCT GGA	TTT CTG AAA	AAA CTG TGC	AGA GCC AAA	CCT CTG TCA	TTT GCA ACT
3033	3042	3051	3060	3069	3078
CCC ACT TGT	ATT TGT ACG	AGG CAG TTG	GAT AAG TGA	AAA ATA AAG	TAC TAT TGT
3087	3096	3105	3114	3123	3132
GTC AAG AAA	AAA AAA AAA	AAA AAA AAA	AAA AAA AAA	AAA AAA AAA	AAA AAA AAA

AAA A 3'

Figure 3: Protein Sequence for 101P3A11.

MVDPNGNESSATYFILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFLCMLSGIDILI
STSSMPKMLAIFWFNSTTIQFDACLLQIFAIHSZSGMESTVLLAMAFDRYVAICHPLRHATVLTLPRTKIGV
AAVVRGAALMAPLPVFIKQLPFCRSNILSHSYCLHQDVMKLACDDIRVNVVYGLIVIIISAIGLDSLLISFSYL
LILKTVLGLTREAQAKAFGTCVSHVCAVFIFYVFFIGLSMVHFRFSKRRDSPLPVILANIYLLVPPVLNPIVYG
VKTKEIRQRILRLFHVATHASEP

Title: NUCLEIC ACID AND CORRESPONDING PROTEIN
ENTITLED 101P3A41 USEFUL IN TREATMENT AND
DETECTION OF CANCER

First Inventor: Daniel E. H. AFAR, et al

Application No.: To Be Assigned - Docket No. 511582002420

Sheet 7 of 50

Figure 4

Alignment of 101P3A11 (Sbjct) with mouse olfactory receptor S25 (Query)

Query: 34 GNYTVVTEFILLGLTDDITVSVILFVMFLIVSVTLMGNLNIIIVLIRTSPQLHTPMYLFL 93
GN + T FIL+GL L +Y + ++GNL II ++RT LH PMY+FL
Sbjct: 6 GNESSATYFILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFL 65

Query: 94 SHLAFLDIGYSSSVTPIMLRGFLRKGTFFIPVAGCVAQLCIVVAFGTSESFLLASMAYDRY 153
L+ +DI S+S P ML F T I C+ Q+ + + ES +L +MA+DRY
Sbjct: 66 CMLSGIDILISTSSMPKMLAIFWFNSTTIQFDACLLQIFAIHSLSGMESTVLLAMAFDRY 125

Query: 154 VAICSPLLYSTQMSSTVCILLVGTSYLGGWVNAWIFTGCSLNL SFCGPNKINHFFCDYSP 213
VAIC PL ++T ++ + + + G L FC N ++H +C +
Sbjct: 126 VAICHPLRHATVLTLPRTKIGVAAVVRGAALMAPLPVFIKQLPFCRSNILSHSYCLHQD 185

Query: 214 LLKLSCSHDFSFEVIPAISSGSIIVVTVFIIALSYVYILVSILKMRSTEGRQKAFSTCTS 273
++KL+C V I S I + +I+ SY+ IL ++L + + E + KAF TC S
Sbjct: 186 VMKLACDDIRVNVVYGLIVIIISAIGLDSLLISFSYLLILKTVLGL-TREAQAKAFGTCVS 244

Query: 274 HLTAVTLFFGTITFIYVMPQSSYSTDQNK----VVSVFYTVVIPMLNPLIYSFRNKEVKE 329
H+ AV +F+ + FI + +S ++ +++ Y +V P+LNP++Y + KE+++
Sbjct: 245 HVCAVFIFY--VPFGLSMVHRFSKRDSPLPVILANIYLLVPPVLNPIVYGVKTKEIRQ 302

Query: 330 AMKKL 334
+ +L
Sbjct: 303 RILRL 307

Figure 5:
101P3A11 Hydrophilicity profile
(Hopp T.P., Woods K.R., 1981. Proc. Natl. Acad. Sci. U.S.A. 78:3824-3828)

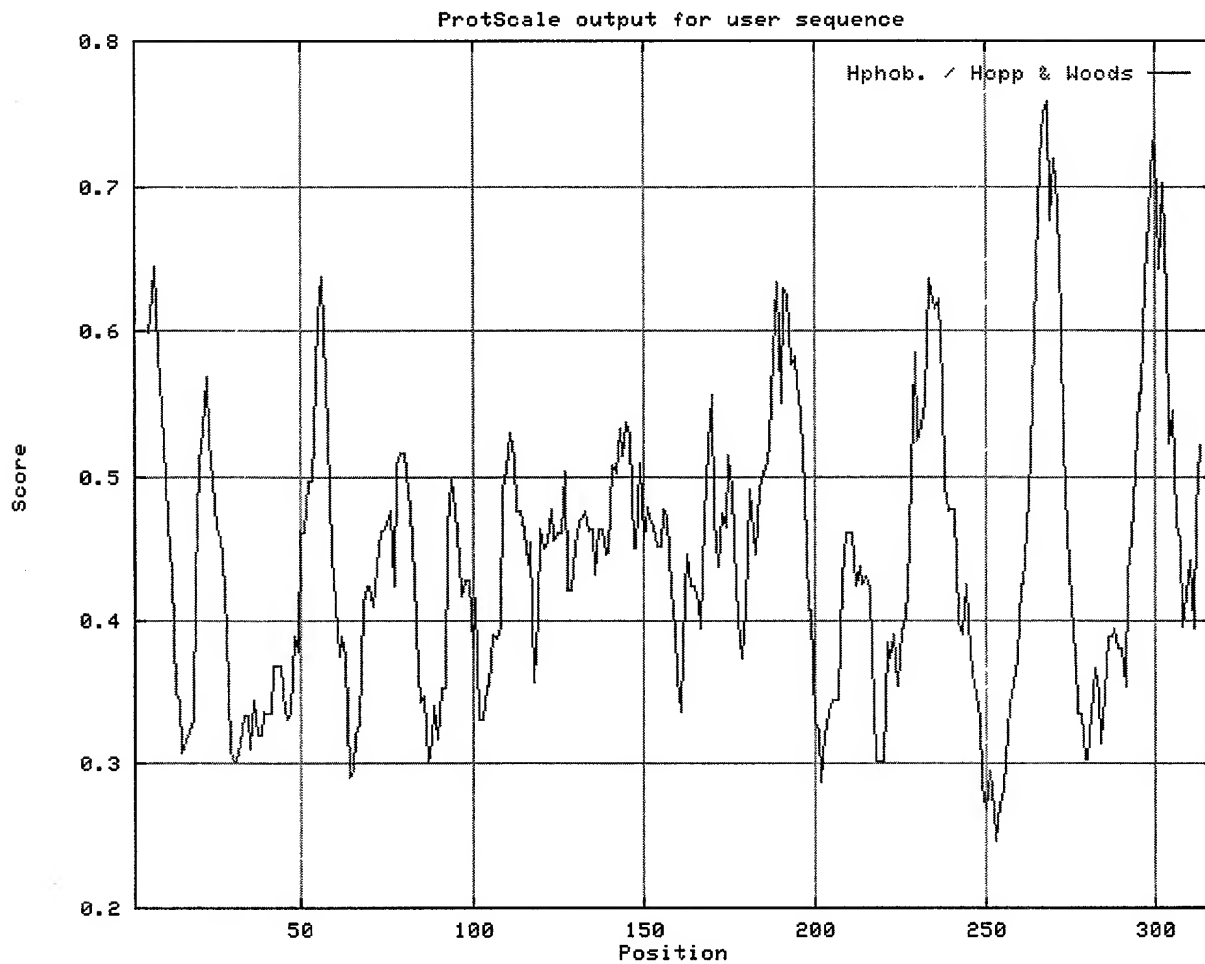


Figure 6:
101P3A11 Hydropathicity Profile
(Kyte J., Doolittle R.F., 1982. J. Mol. Biol. 157:105-132)

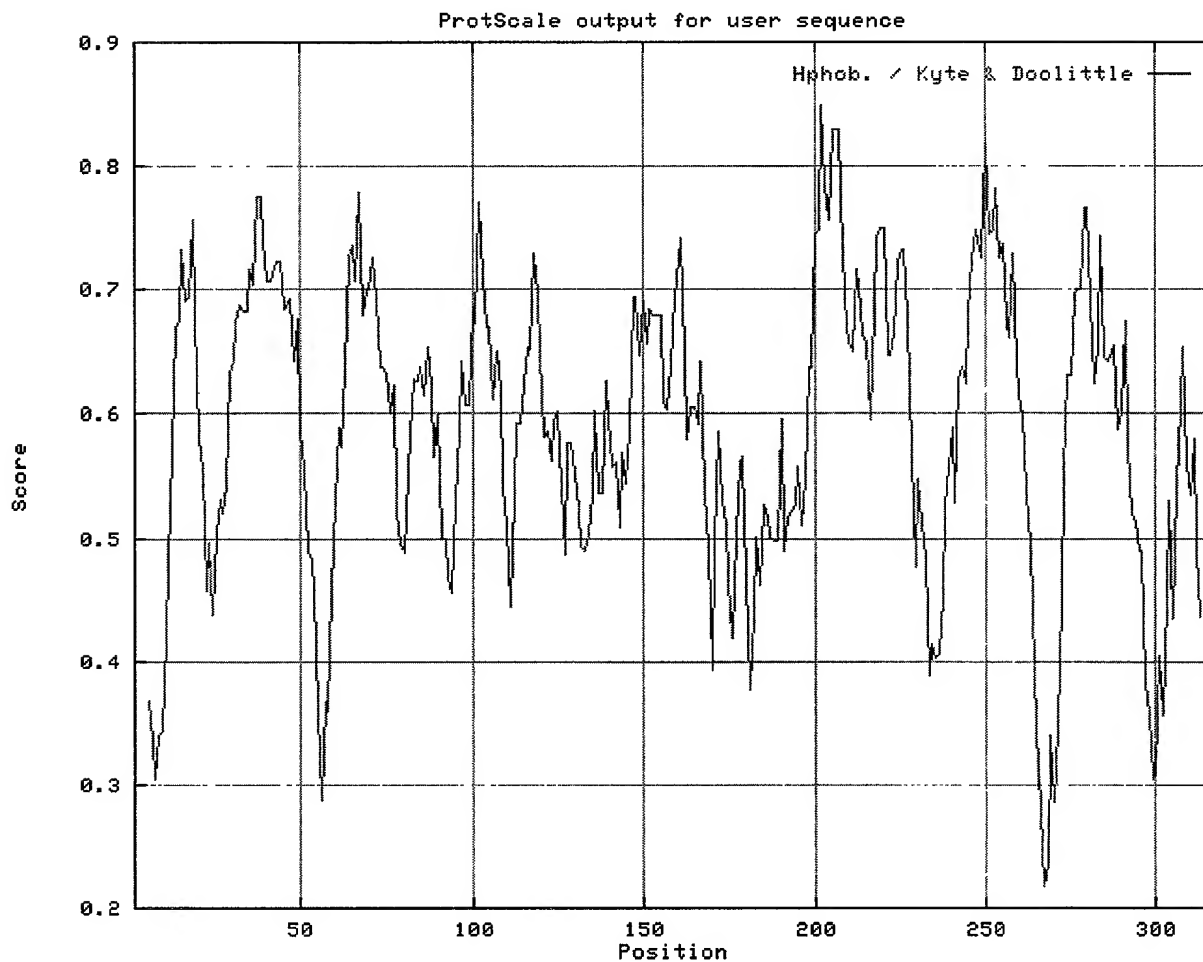


Figure 7: 101P3A11 % Accessible Residues Profile (Janin J., 1979. Nature 277:491-492)

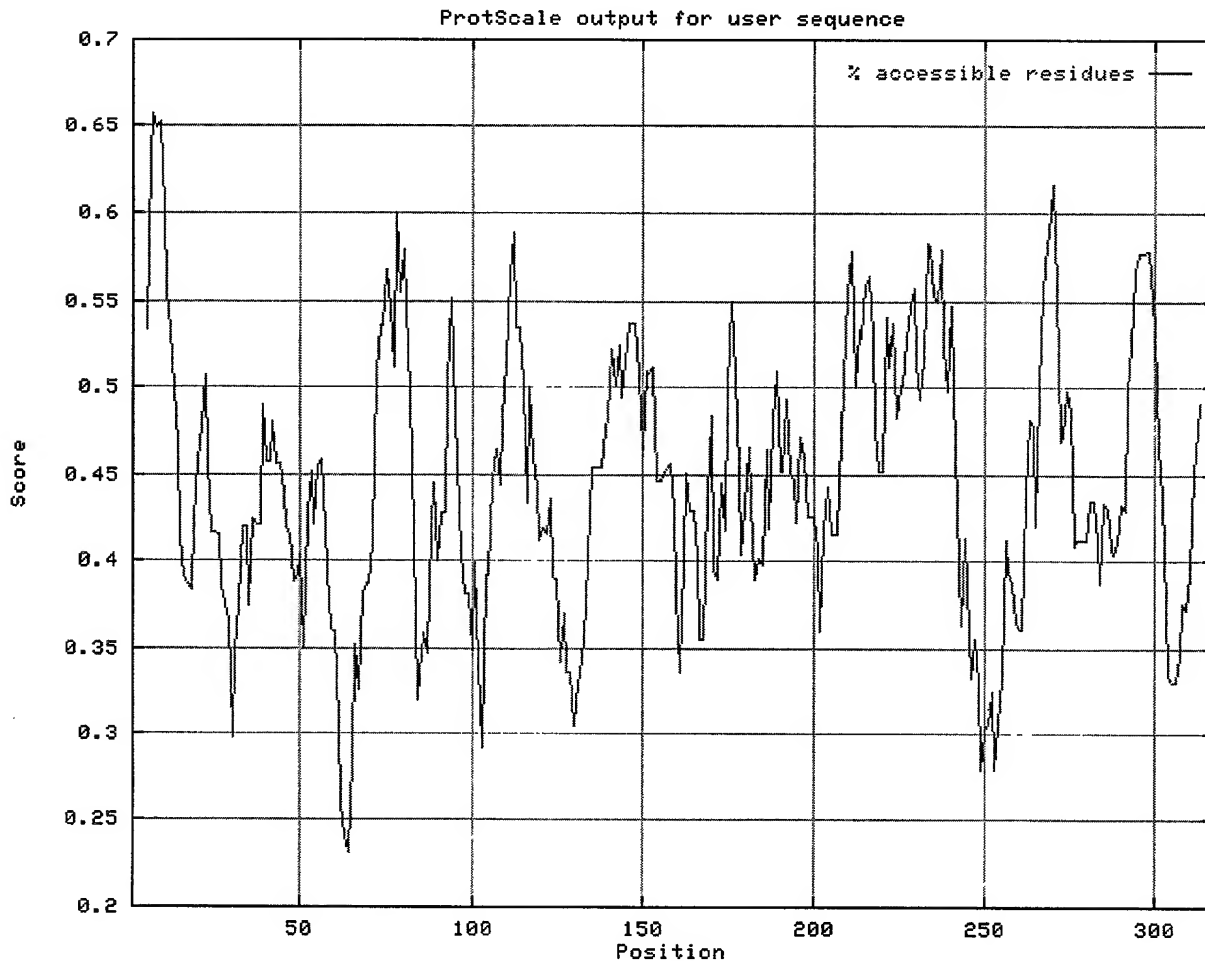


Figure 8:
101P3A11 Average Flexibility Profile
(Bhaskaran R., Ponnuswamy P.K., 1988.
Int. J. Pept. Protein Res. 32:242-255)

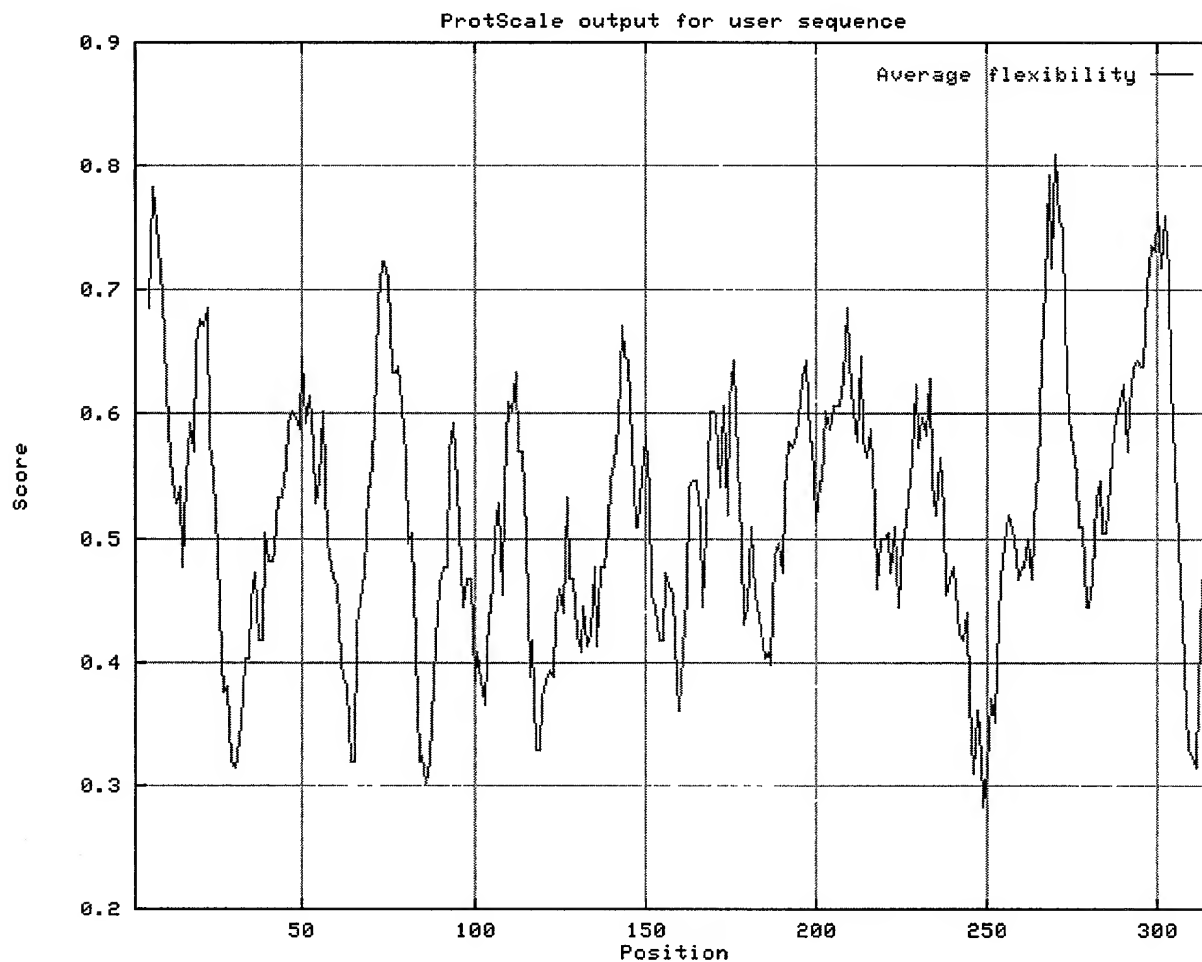


Figure 9:
101P3A11 Beta-turn Profile
(Deleage, G., Roux B. 1987. Protein Engineering 1:289-294)

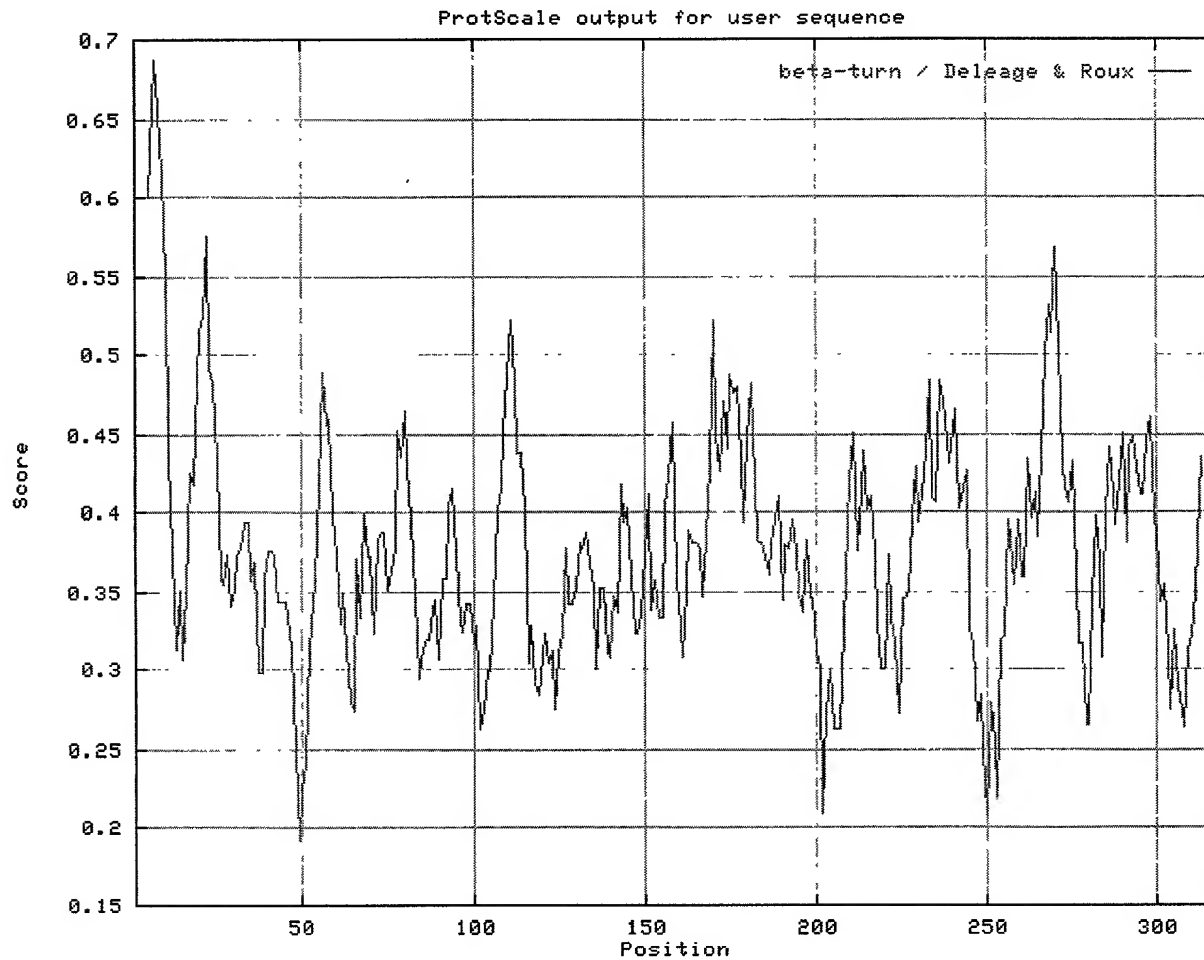


Figure 10A. Expression of 101P3A11 by RT-PCR

- VP1 (Kidney, Lung, Liver)
- VP2 (Pancreas, Colon, Stomach)
- Prostate xenograft Pool
- Prostate Cancer Pool
- Kidney Cancer Pool
- Colon Cancer Pool
- Breast Cancer Pool
- Metastasis Pool
- H2O

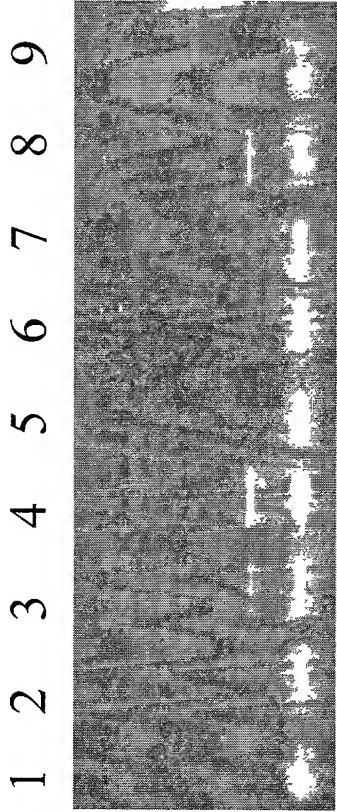


Figure 10B

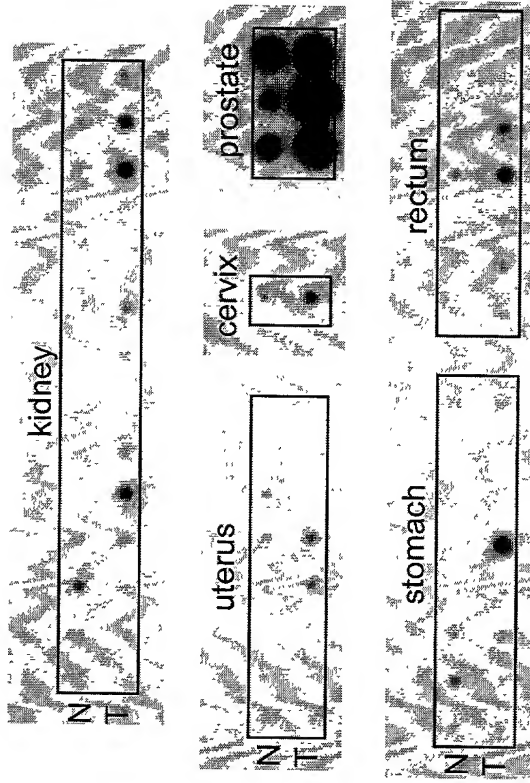
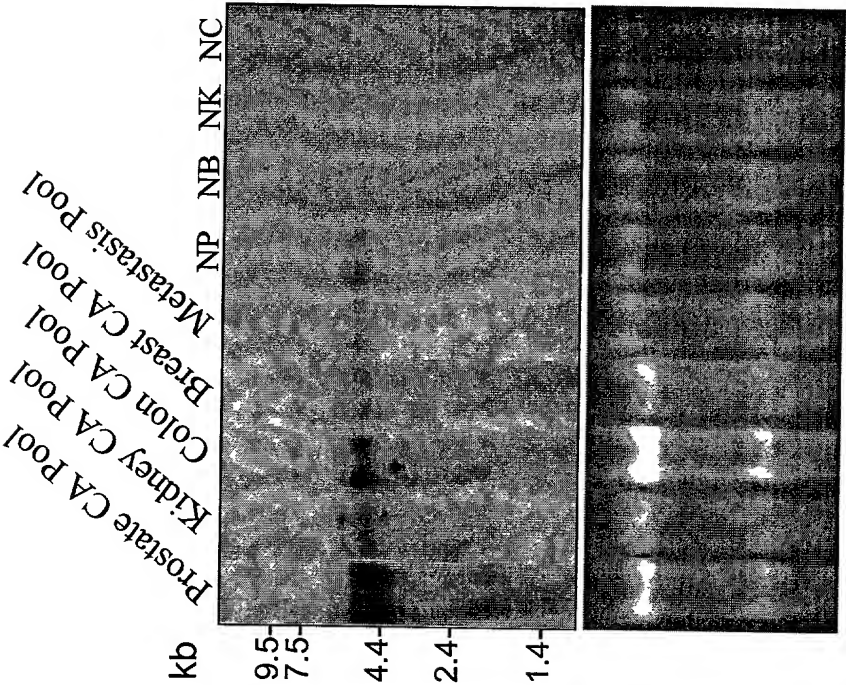


Figure 11. Expression of 101P3A11 in Human Patient Cancer Specimens



10µg total RNA/per lane from a pool of 3 tumors as follows:

Prostate Cancer Pool = gleason 6, 8, 9
Kidney Cancer Pool = grade 2, 2, 3
Colon Cancer Pool = stage II, III, IV
Breast Cancer Pool = grade 1, 2, 3
Metastasis Pool = colon to lung, colon to liver, ovary to fall. tube

NP = Normal Prostate
NB = Normal Bladder
NK = Normal Kidney
NC = Normal Colon

Figure 12A

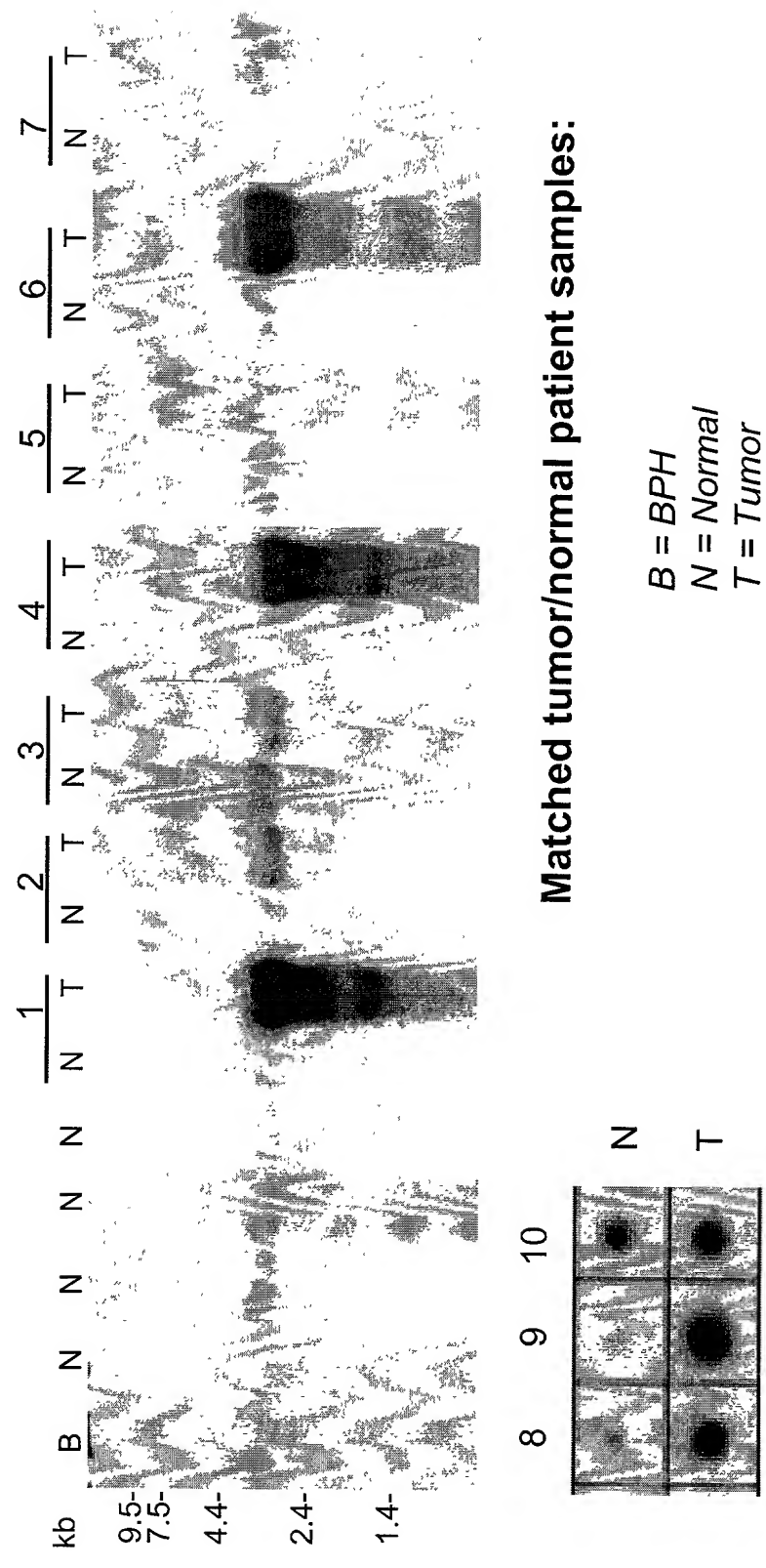


Figure 12B and 12C

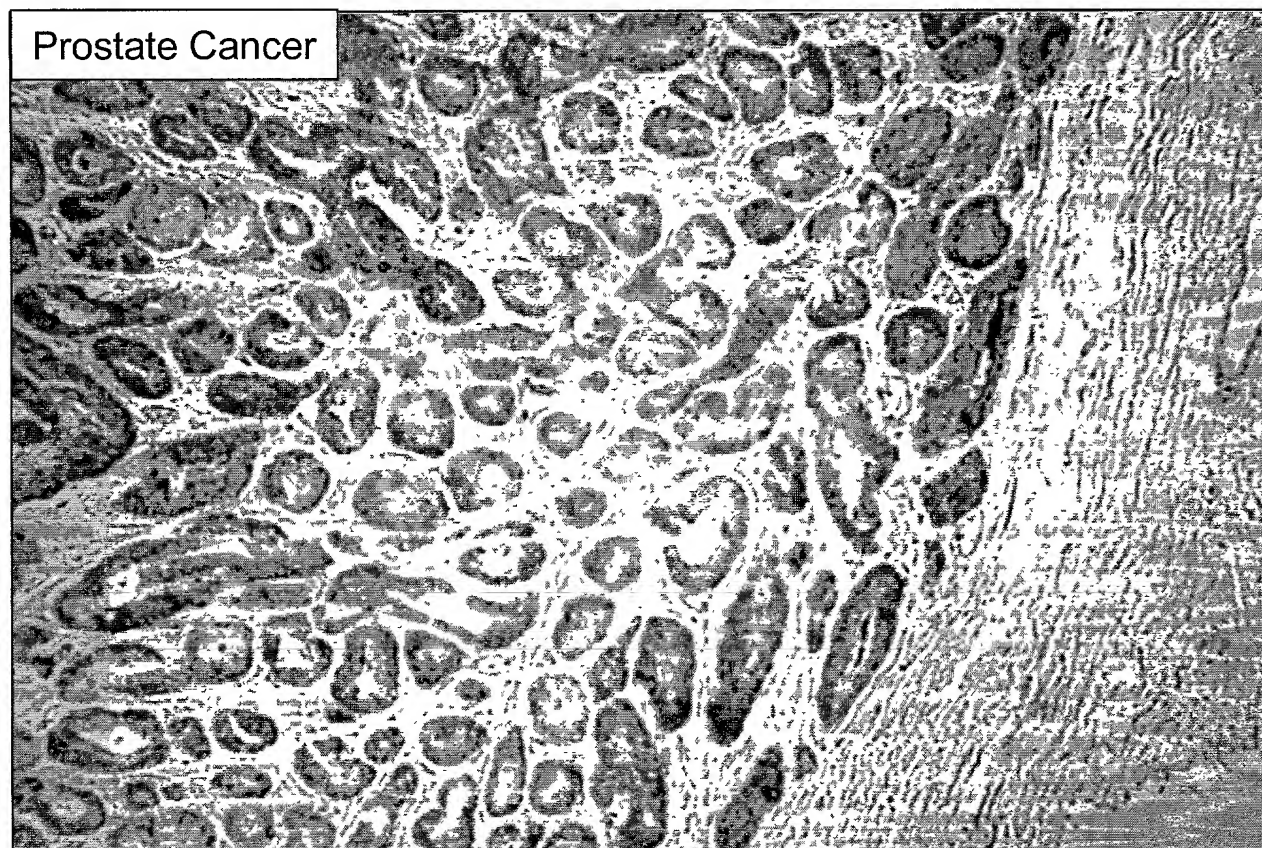


Figure 12D and 12E

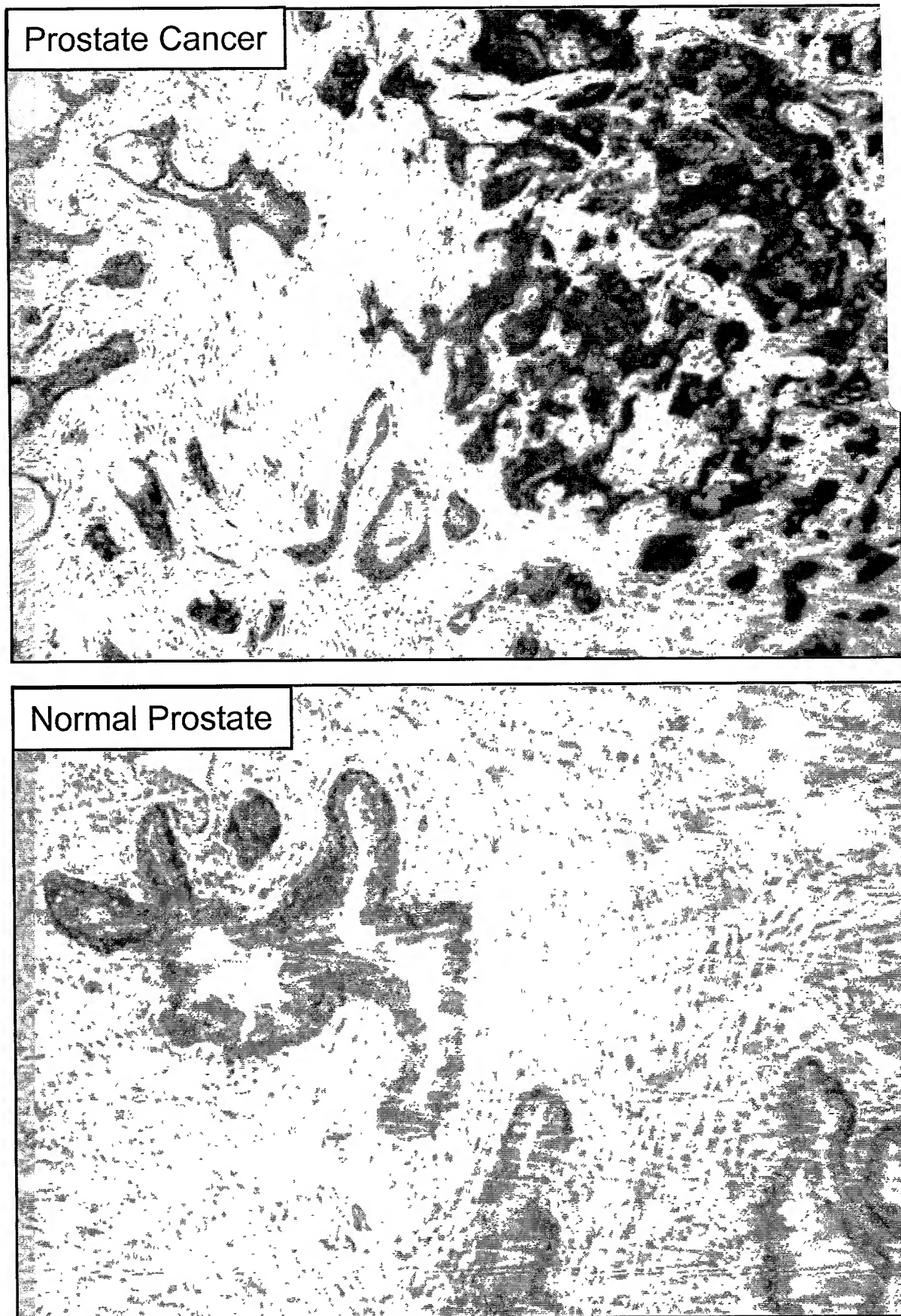


Figure 13. Expression of 101P3A11 in Colon Cancer Patient Specimens

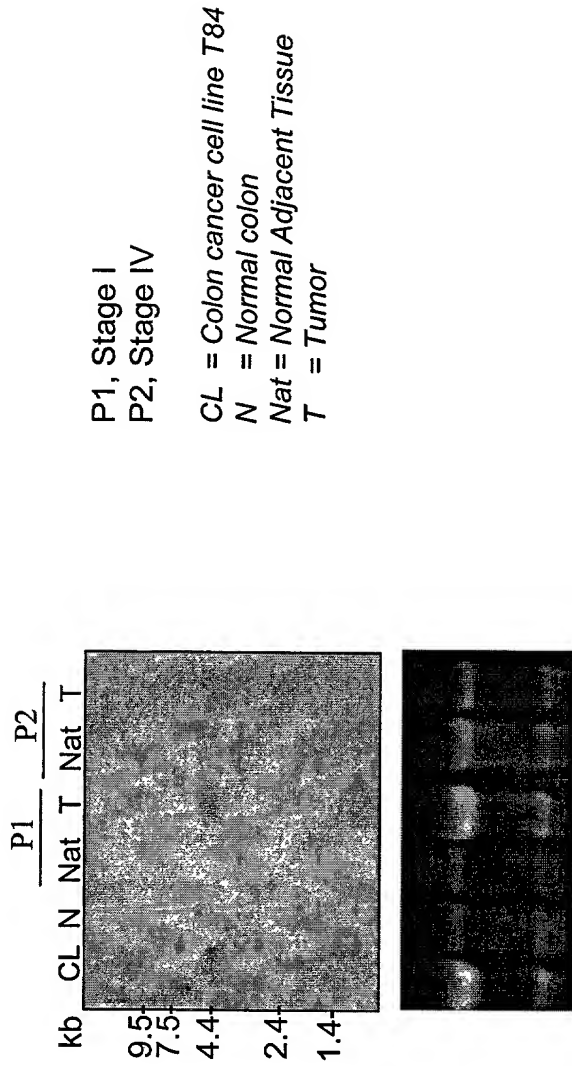


Figure 14. Expression of 101P3A11 in Kidney Cancer Patient Specimens

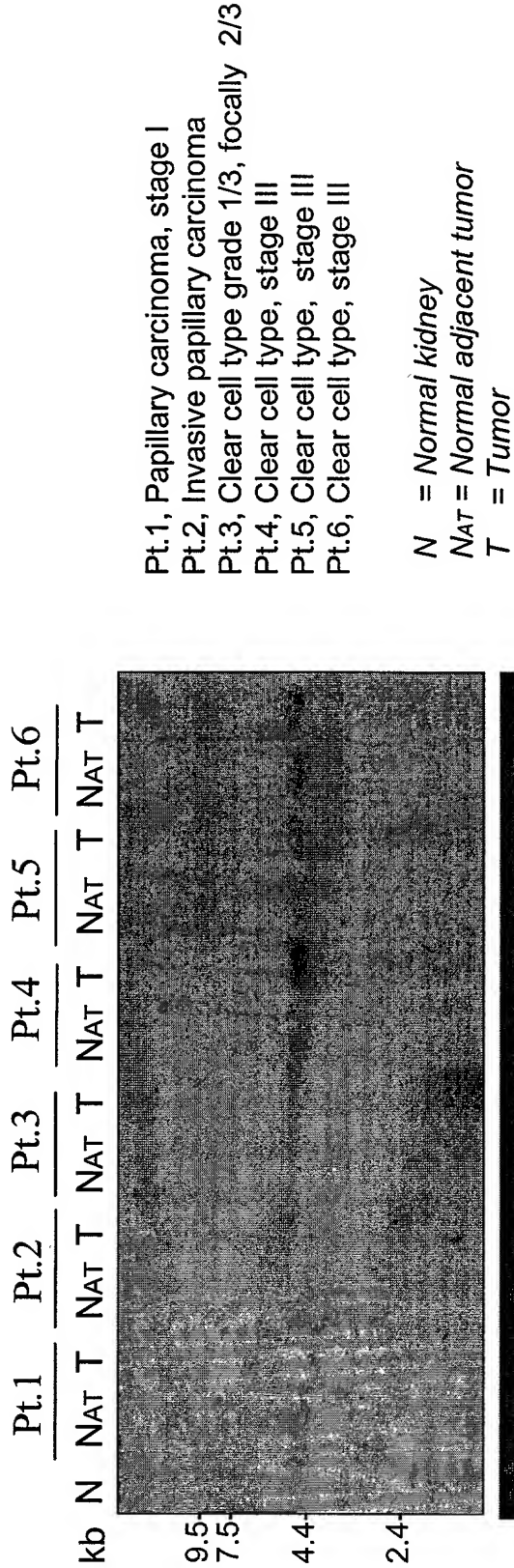


Figure 15A-15C. Androgen Regulation of 101P3A11 in Tissue Culture Cells

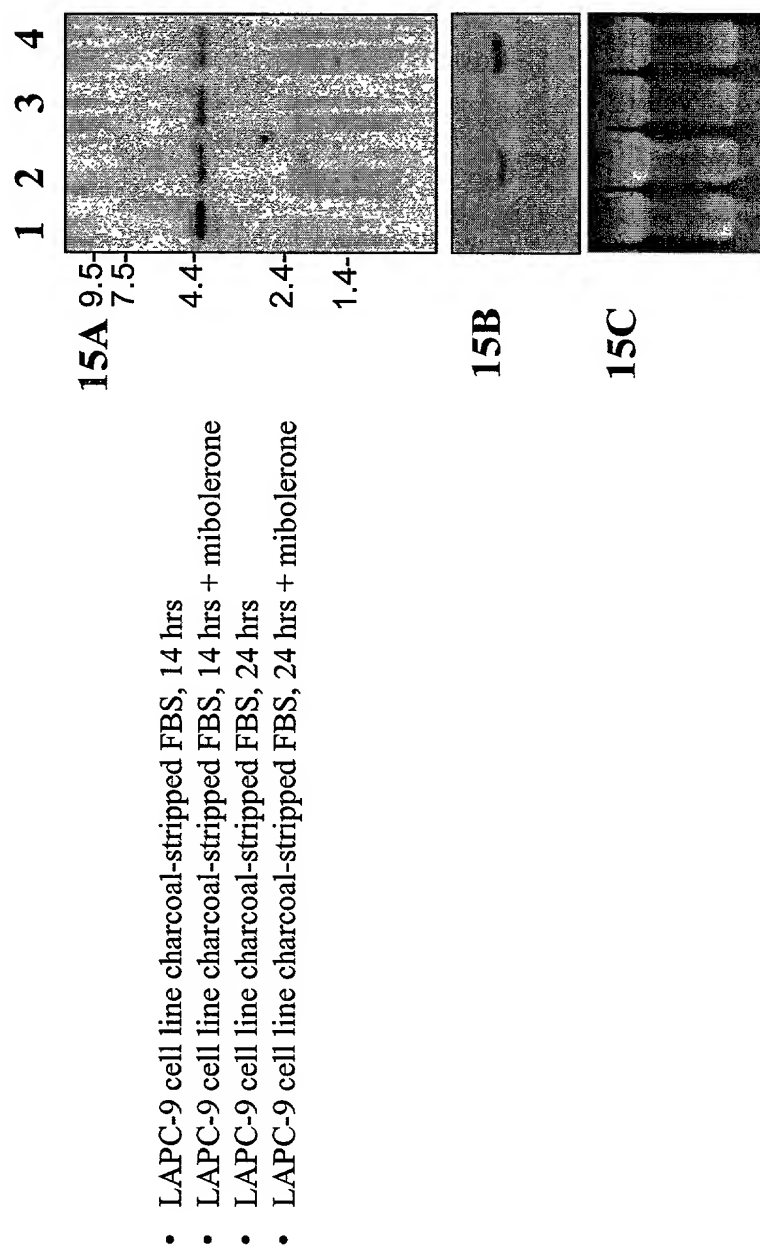
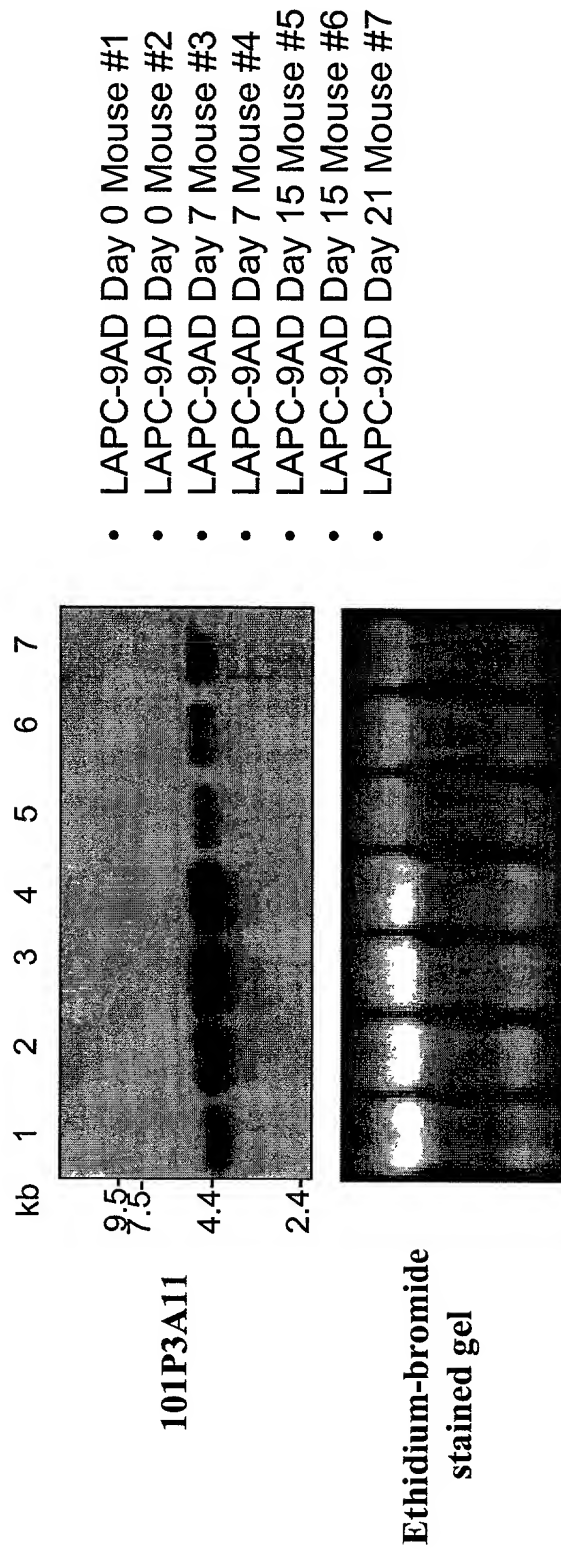


Figure 16. Androgen Regulation of 101P3A11 *In Vivo*



**Figure 17. Expression and Detection of 101P3A11(159-202)-
psecFc Fusion Protein**

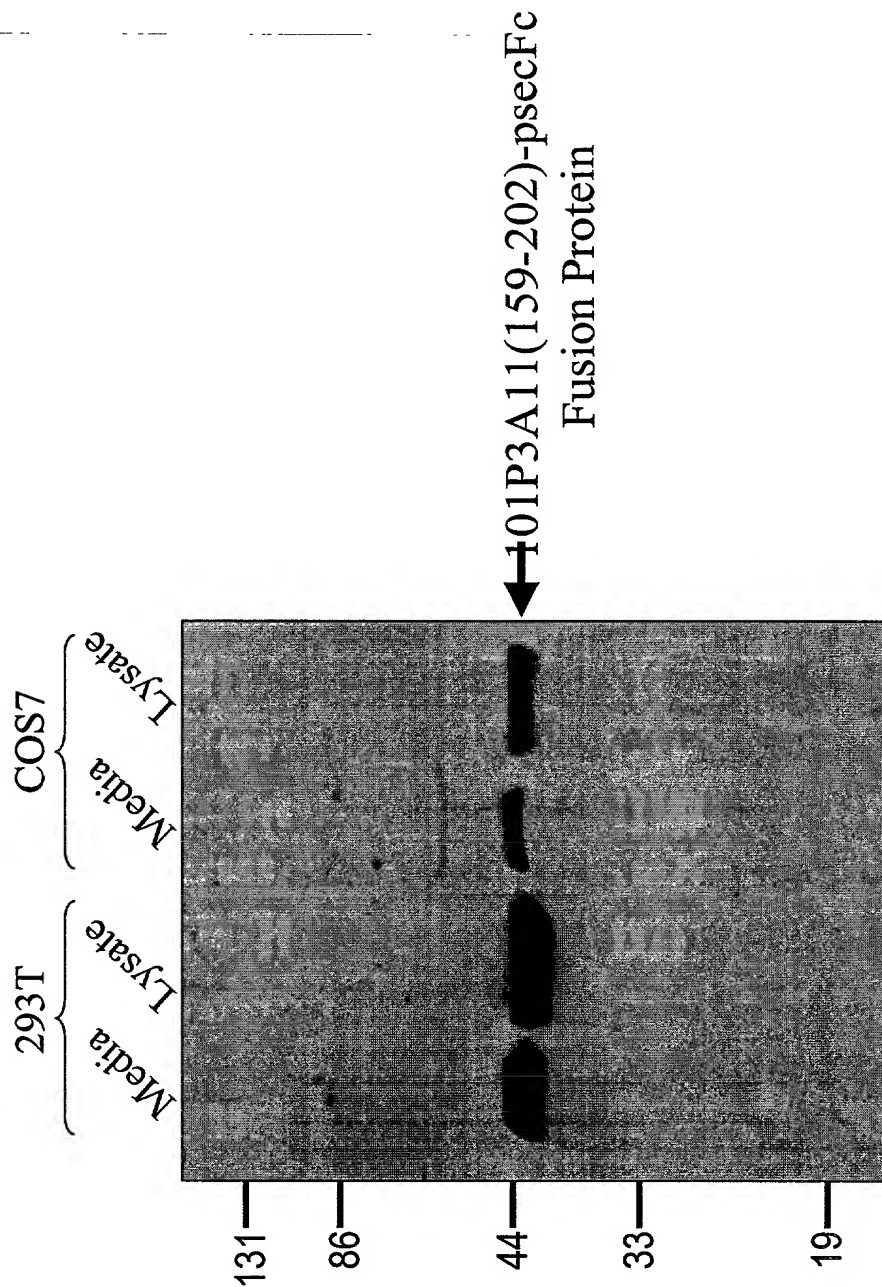
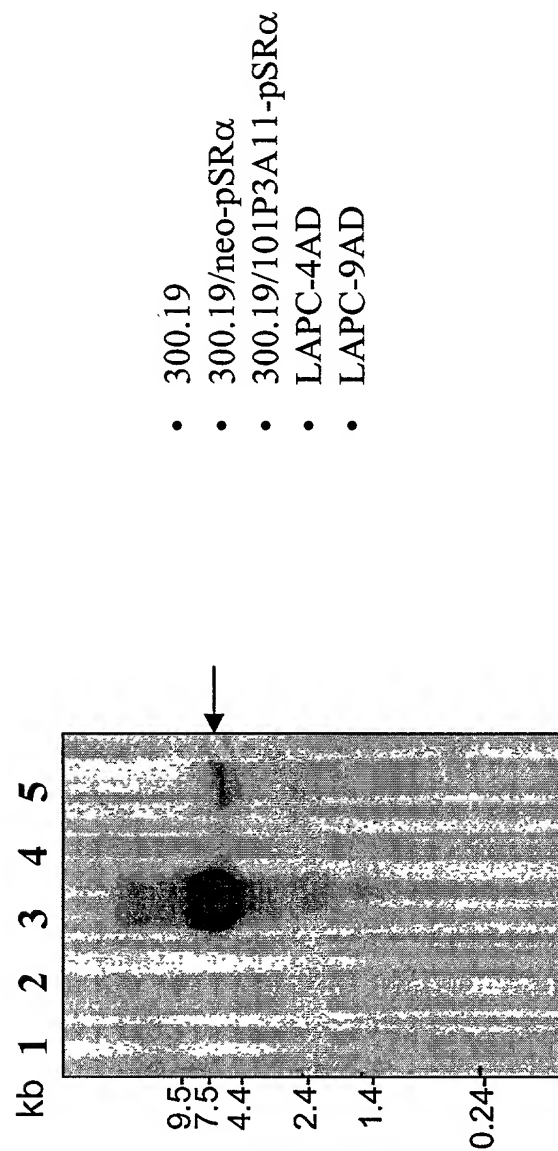


Figure 18. Expression of 101P3A11 in 300.19 Cells



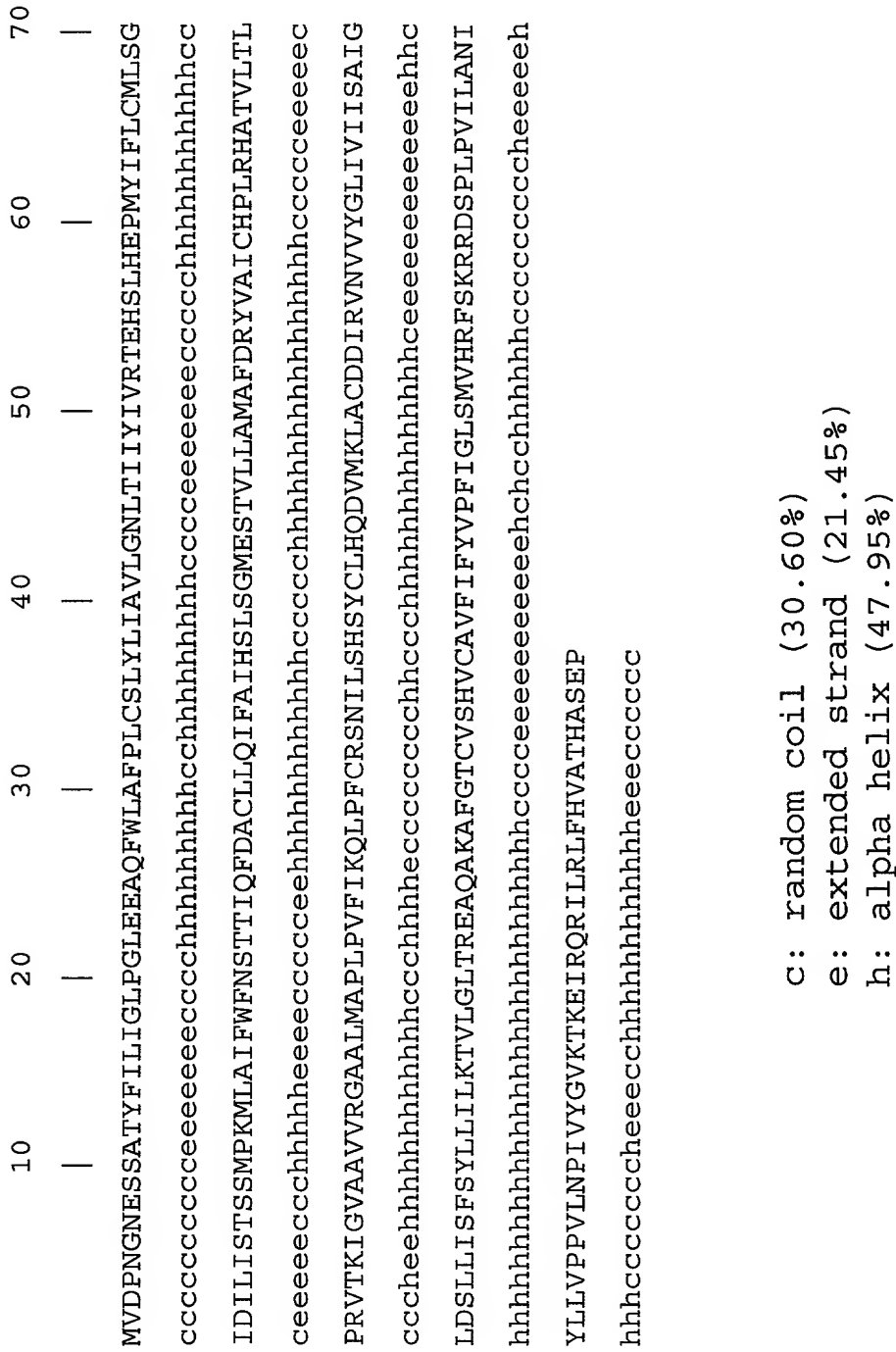
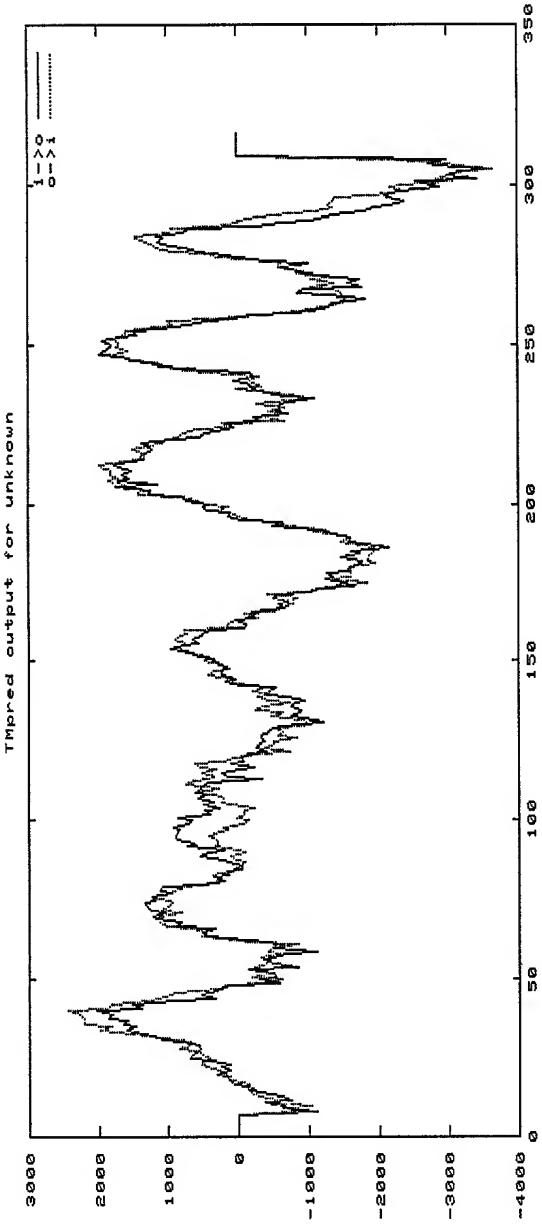
[illegible]

Figure 19B-19C. Transmembrane prediction of 101P3A11

19B



19C

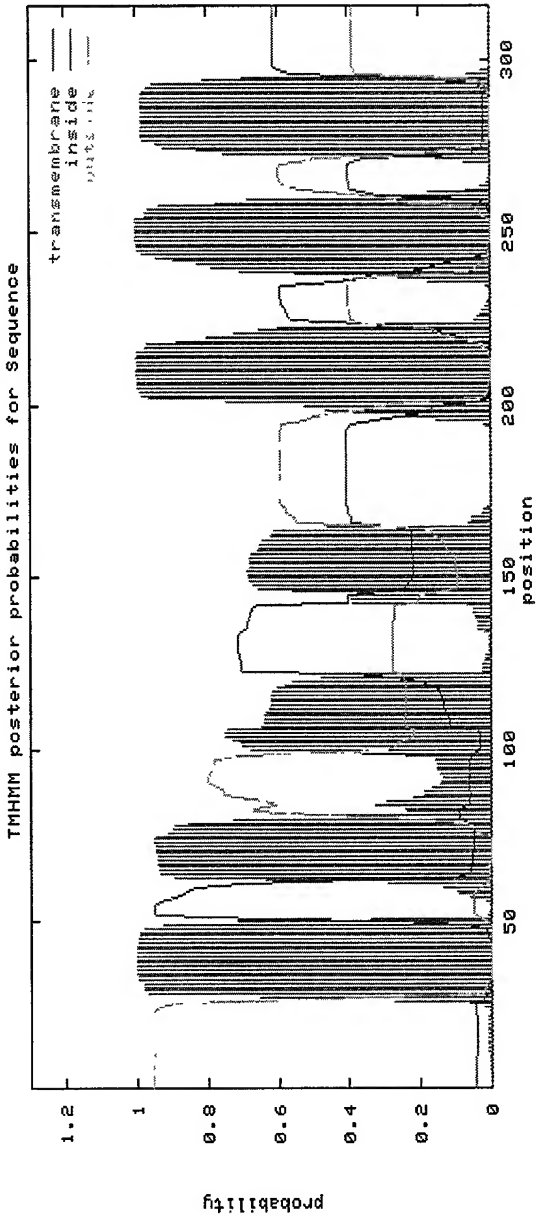


Figure 20. Expression of 101P3A11 in NIH-3T3 Tumors

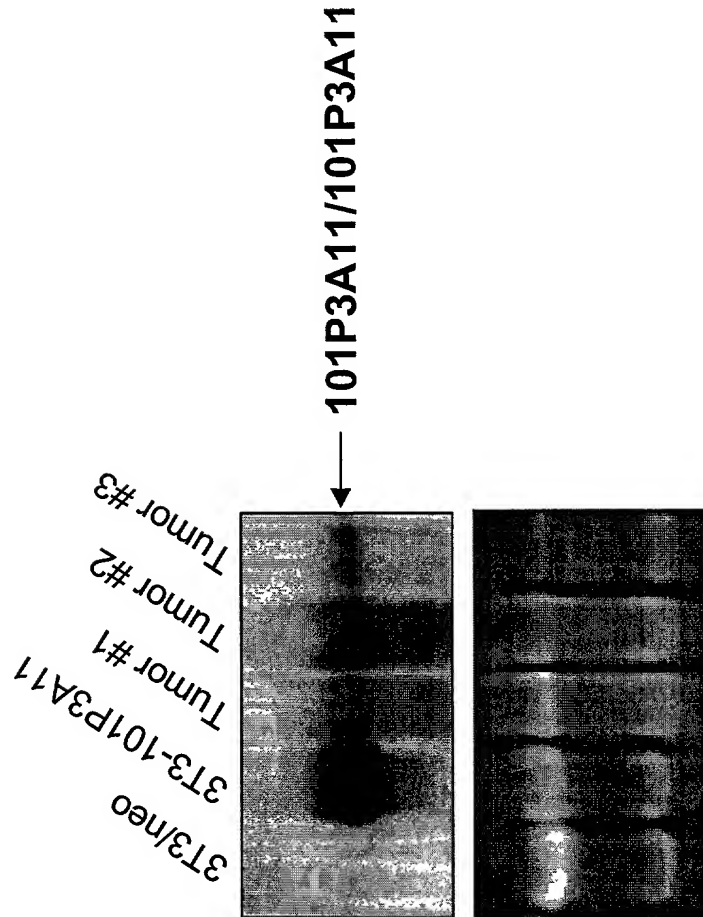
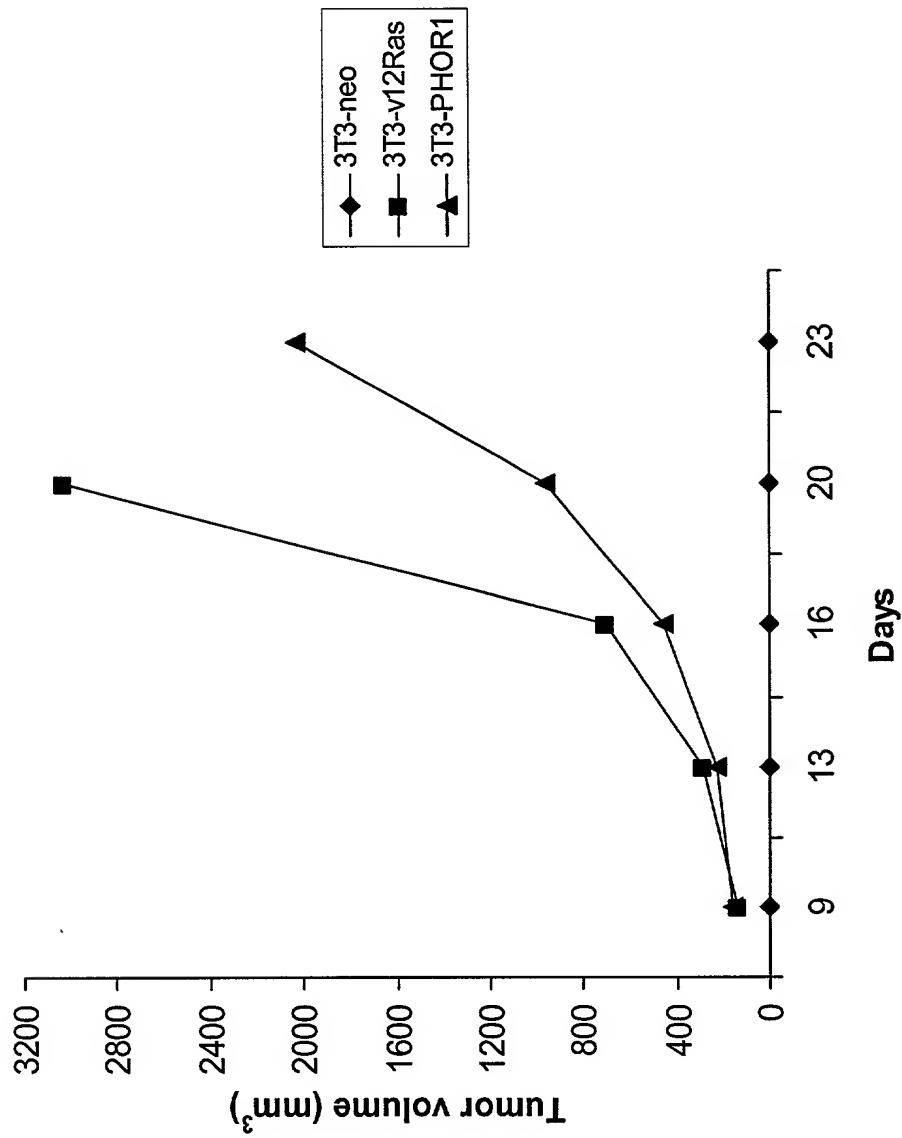
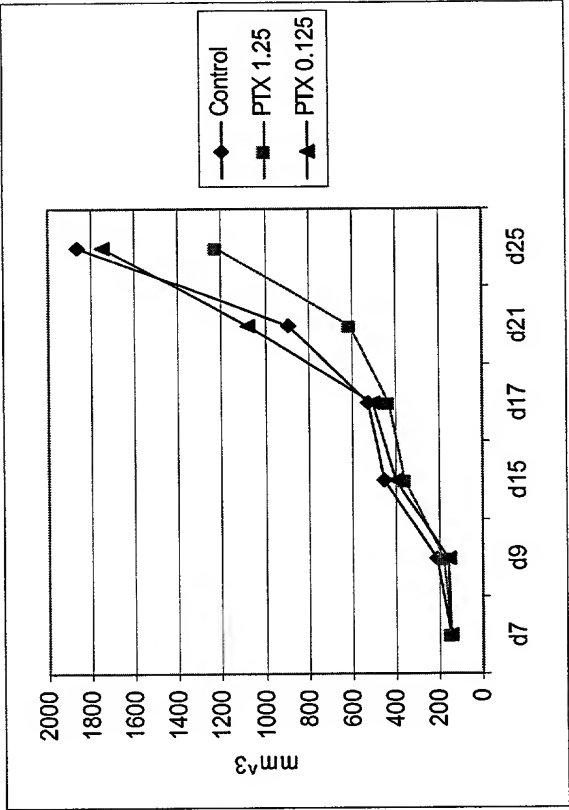


Figure 21: 101P3A11 Induces Tumor Formation of 3T3 Cells



•Injection of 10⁶ 3T3-neo, 3T3-Ras or 3T3-101P3A11 cells subcutaneously into SCID mice revealed that 6/6 3T3-Ras-injected mice formed tumors, 6/6 3T3-101P3A11- injected mice formed tumors, and 0/6 3T3-neo-injected mice formed tumors.

Figure 22: PTX Reduces the *in vivo* Growth of 3T3-101P3A11 Tumors



- Pertussis toxin inhibits the sub-cutaneous growth of 3T3-101P3A11 tumors in SCID mice.
- The inhibitory activity of pertussis toxin occurs in a dose dependent manner.

Figure 23: Alignment of 10IP3A11-PHOR-1 with the rat GPCR RA1C (gi|3420759).

Identities = 179/299 (59%), Positives = 231/299 (76%), Gaps = 1/299 (0%)

```

PHOR: 14  FILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFLCMLSGIDI 73
          F+LIG+PGLEEA FW  FPL S+Y +A+ GN  +++IVRTE SLH PMY+FLCML+ ID+
RA1C: 11  FMLIGIPGLEEAHFWFGFPLLSMYAVALFGNCIVVFIVRTERSLHAPMYLFLCMLAAIDL 70

PHOR: 74  LISTSSMPKMLAIFWFNSTTIQFDACLLQIFAIHSLSGMESTVLLAMAFDRYVAICHPLR 133
          +STS+MPK+LA+FWF+S  I FDACL Q+F IH+LS +EST+LLAMAFDRYVAICHPLR
RA1C: 71  ALSTSTMPKILALFWFDSREITFDACLAQMFFIHALSAIESTILLAMAFDRYVAICHPLR 130

PHOR: 134 HATVLTLPRTVKIGVAAVVRGAALMAPLPVFIKQLPFCRSNILSHSYCLHQDVMKLACDD 193
          HA VL      +IG+ A+VRG+  PLP+ IK+L FC SN+LSHSHYC+HQDVMKLA  D
RA1C: 131 HAAVLNNTVTTVQIGMVALVRGSLFFFPLPLLIKRLAFCHSNVLSHSHYCVHQDVMKLAYTD 190

PHOR: 194 IRNVVYGLIIVIISAIGLDSLLISFSYLLILKTVLGL-TREAQAKAFGTCVSHVCAVFIF 252
          NVVYGL  I+  +G+D + IS SY LI++ VL L ++  +AKAFGTCVSH+  V  F
RA1C: 191 TLPNVVYGLTAILLVMGVDVMFISLSYFLIIRAVLQLPSKSERAKAFGTCVSHIGVVLA 250

PHOR: 253 YVPFIGLSMVHRFSKRRDSPLPVILANIYLLVPPVLNPIVYGVKTKAIRQLRLFHVA 311
          YVP IGLS+VHRF  D  + V++ ++YLL+PPV+NPI+YG KTK+IR R+L +F ++
RA1C: 251 YVPLIGLSVVHRFGNSLDPIVHVLMDVYLLLPVINPIIYGAKTKQIRTRVLAMFKIS 309

```

Figure 24: Alignment of 101P3A11-PHOR-1 with the human prostate specific GPCR. (gi|13540539)

Identities = 179/299 (59%), Positives = 233/299 (77%), Gaps = 1/299 (0%)

```

PHOR: 14  FILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFLCMLSGIDI 73
          F+LIG+PGLE+A FW+ FPL S+Y++A+ GN +++IVRTE SLH PMY+FLCML+ ID+
GPCR: 11  FVLIGIPGLEKAHFWVGFPLLSMYVVAMFGNCIVVFIVRTERS LHAPMYLFLCMLAAIDL 70

PHOR: 74  LISTSSMPKMLAIFWFNSTTIQFDACLLQIFAIHSLSGMESTVLLAMAFDRYVAICHPLR 133
          +STS+MPK+LA+FWF+S I F+ACL Q+F IH+LS +EST+LLAMAFDRYVAICHPLR
GPCR: 71  ALSTSTMPKILALFWFDSREISFEACLTQMFFIHALSAIESTILLAMAFDRYVAICHPLR 130

PHOR: 134 HATVLTLPRTVKIGVAAVVRGAALMAPLPVFIKQLPFCRSNILSHSYCLHQDVMKLACDD 193
          HA VL +IG+ AVVRG+ PLP+ IK+L FC SN+LSHSYC+HQDVMKLA D
GPCR: 131 HAAVLNNTVTQAQIGIVAVVRGSLFFFPLPLLIKRLAFCHSNVLSHSYCVHQDVMKLAYAD 190

PHOR: 194 IRVNVVYGLIVIIISAIGLDSLLISFSYLLILKTVLGL-TREAQAKAFGTCVSHVCAVFIF 252
          NVVYGL I+ +G+D + IS SY LI++TVL L ++ +AKAFGTCVSH+ V F
GPCR: 191 TLPNVVYGLTAILLVMGVDVMFISLSYFLIIRTVLQLPSKSERAKAFGTCVSHIGVVLA 250

PHOR: 253 YVPFIGLSMVHRFSKRRDSPLPVILANIYLLVPPVLNPIVYGVTKEIRQLRFLHVA 311
          YVP IGLS+VHRF + V++ +IYLL+PPV+NPI+YG KTK+IR R+L +F ++
GPCR: 251 YVPLIGLSVVHRFGNSLHPVIRVVMGDIYLLLPVINPIIYGAKTKQIRTRVLAMFKIS 309

```

101P3A41

Figure 25: Alignment with human olfactory receptor 5l12 (gi|14423836)

Identities = 163/304 (53%), Positives = 214/304 (69%), Gaps = 1/304 (0%)

PHOR: 7 NESSATYFILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFLC 66
N + +F+L G+PGL E + WL+ PL C +Y +A+ GN I+ VR E SLHEP MY FL
HOR5: 5 NVTHPAFFLLTGIPGLESSHWSL SGP LCV MYAVALGGNTVILQAVRVEPSLHEP MY YFLS 64

PHOR: 67 ML SGIDILISTSSMPKMLAIFWFNSTTIQFDACLLQIFAIHSLSGMESTVLLAMAFDRYV 126
MLS D+ IS +++P +L F N+ I FDACL+Q+F IH S MES +LLAM+FD RYV
HOR5: 65 ML SFSDVAISMATLPTVLRTFCLNARNITFDACLIQMFLIHFFSMMESGILLAMSFDRYV 124

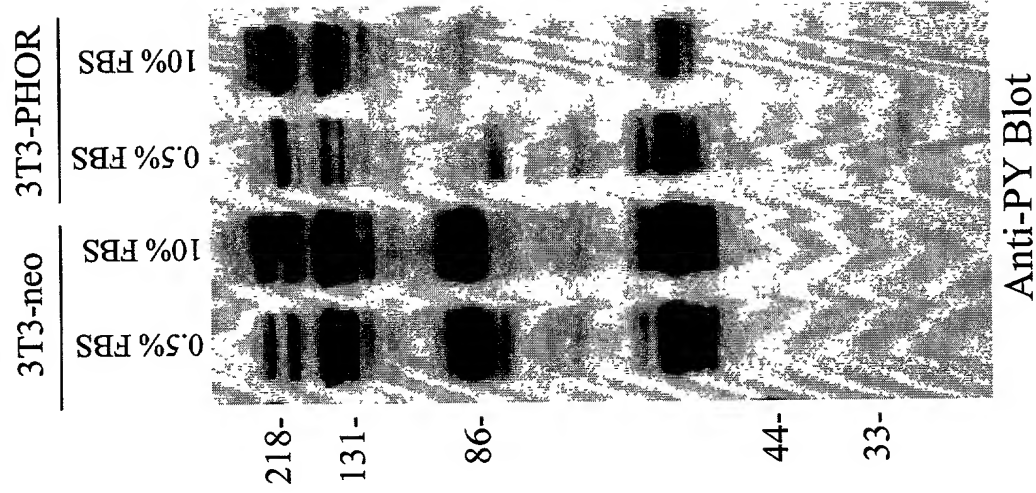
PHOR: 127 AICHPLRHATVLTLP RVTKIGVAAVVRGAALMAPLPVFIKQLPFCRSNILSHSYCLHQDV 186
AIC PLR+ATVLT + +G+ A R + PLP IK+LP CRSN+LSHSYCLH D+
HOR5: 125 AICDPLRYATVLTTEVIAAMGLGAAARSFITLFFLPFLIKRLPICRSNVLSHSYCLHPDM 184

PHOR: 187 MKLACDDIRVNVVYGLIVIISAIGLDSLLISFSYLLILKTVLGL-TREAQAKAFGTCVSH 245
M+LAC DI +N +YGL V++S G+D I SY+LIL++V+ +RE + KA TCVSH
HOR5: 185 MRLACADISINSIYGLFVLVSTFGMDLFFIFLSYVLILRSVMATASREERL KALNTCVSH 244

PHOR: 246 VCAVFIFYVPF IGLSMVHRFSKRRDSPLPVILANIYLLVPPVLNPIVYGVTKEIRQRIL 305
+ AV FYVP IG+S VHRF K + V+++N+YL VPPVLNP++Y KTK EIR+ I
HOR5: 245 ILAVLAFYVPMIGVSTVHRFGKHVPCYIHVLSNVYLFVPPVLNPLIYSAKTKEIRRAIF 304

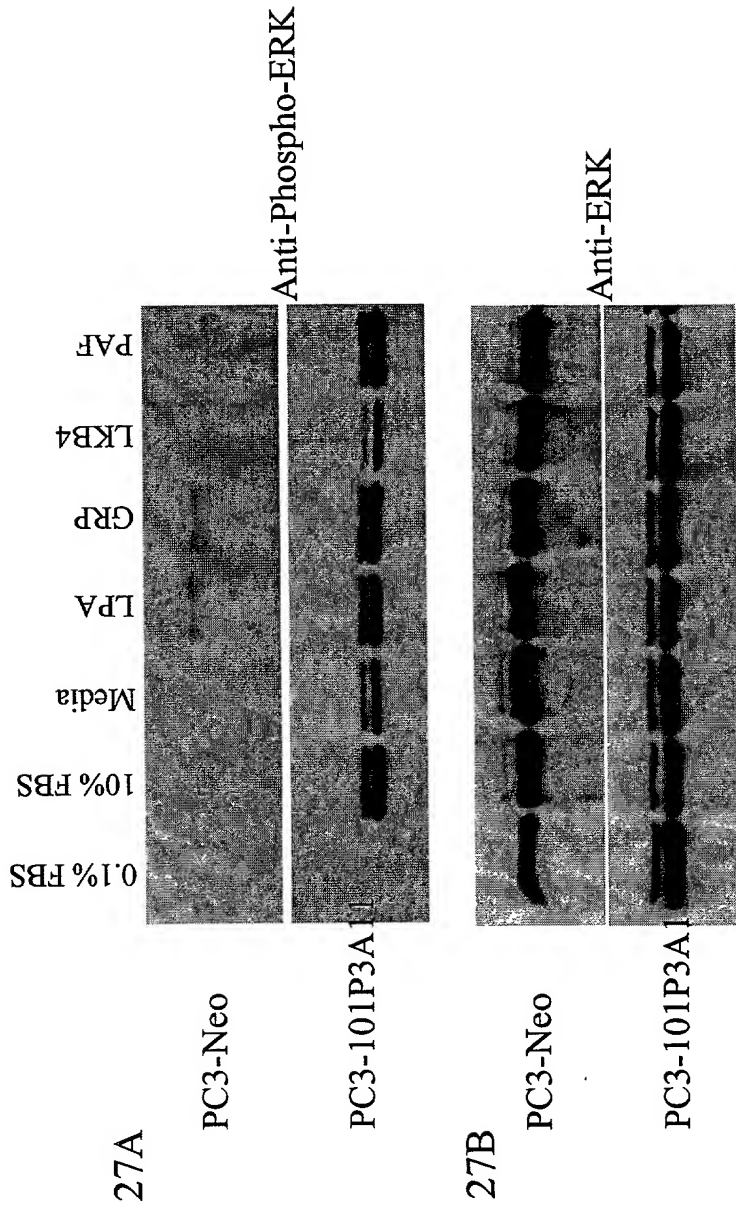
PHOR: 306 RLFH 309
R+FH
HOR5: 305 RMFH 308

Figure 26: 101P3A11 Modulated Tyrosine Phosphorylation in NIH-3T3 Cells



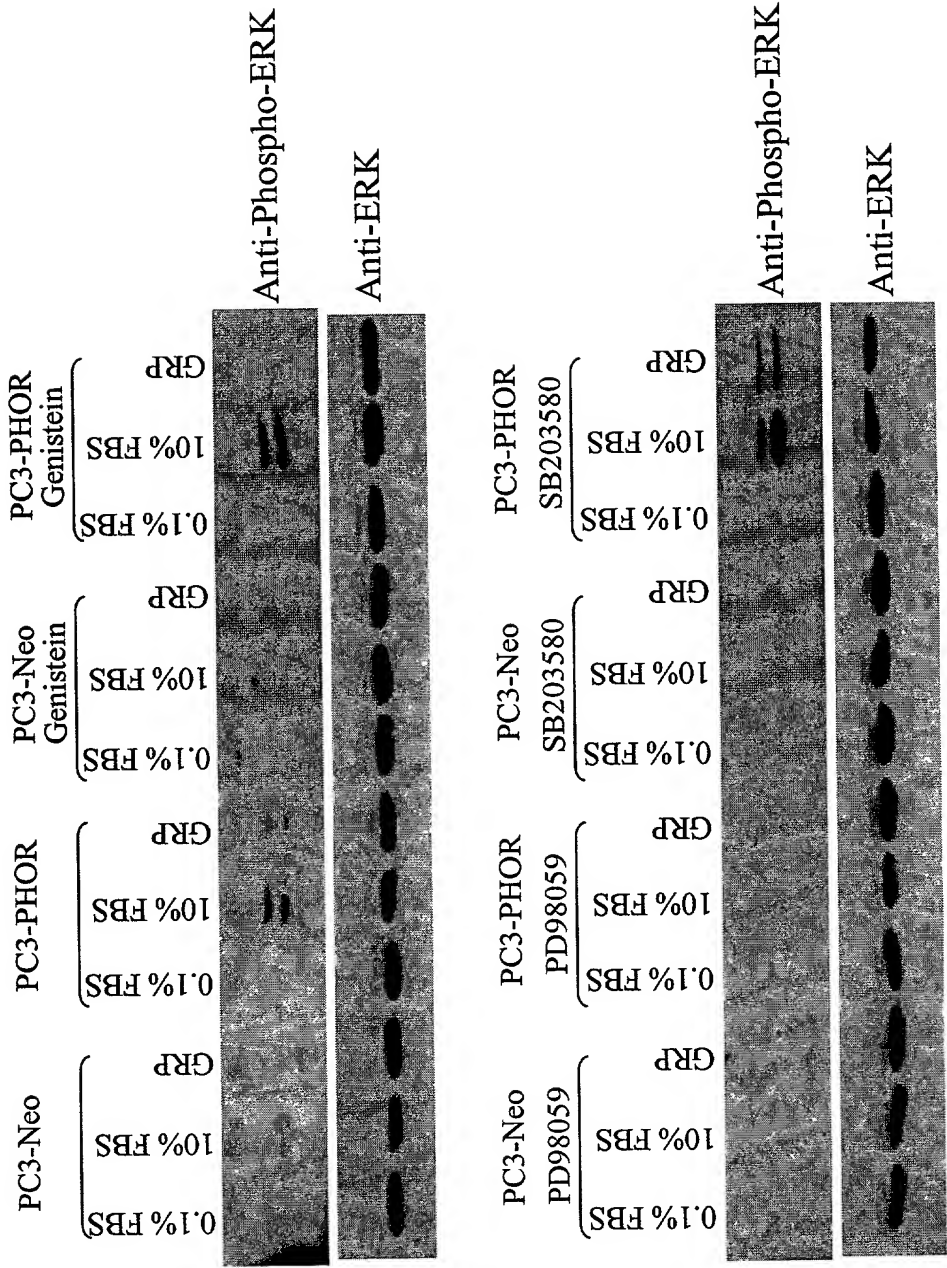
- 101P3A11 mediated the de-phosphorylation of proteins at 200, 120-140, 85-90 and 55 kDa
- 101P3A11 induced the phosphorylation of proteins at 80 and 29 kDa in NIH-3T3 cells.

Figures 27A-27B: ERK Phosphorylation by PCR Ligands in 101P3A11
Expressing Cells



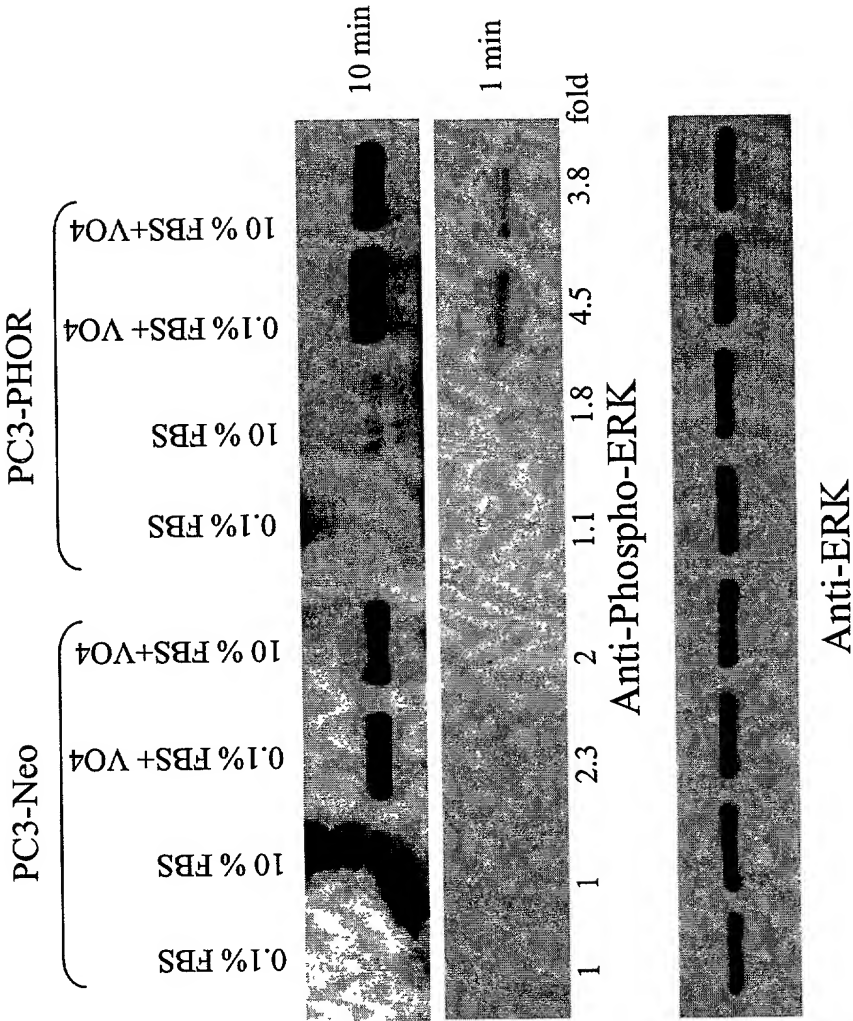
•FBS, lipophosphatidic acid, gastrin releasing peptide, leukotriene and platelet activating factor induced the phosphorylation of ERK in 101P3A11 expressing cells.

Figure 28: Inhibition of 101P3A11-Mediated ERK Activation by PD98059



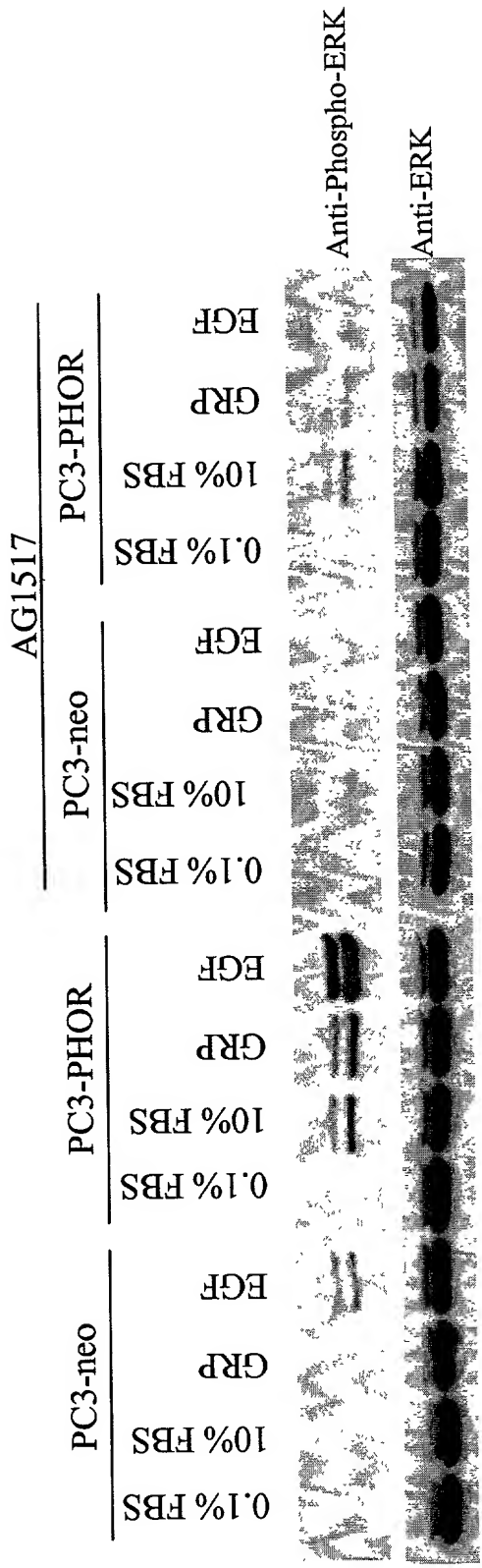
•ERK phosphorylation was inhibited by a MEK specific(PD98059) but not a p38 specific (SB203580) inhibitor in PC3-101P3A11 cells.

Figure 29: Enhanced ERK Phosphorylation in Sodium Orthovanadate Treated PC3-101P3A11 Cells



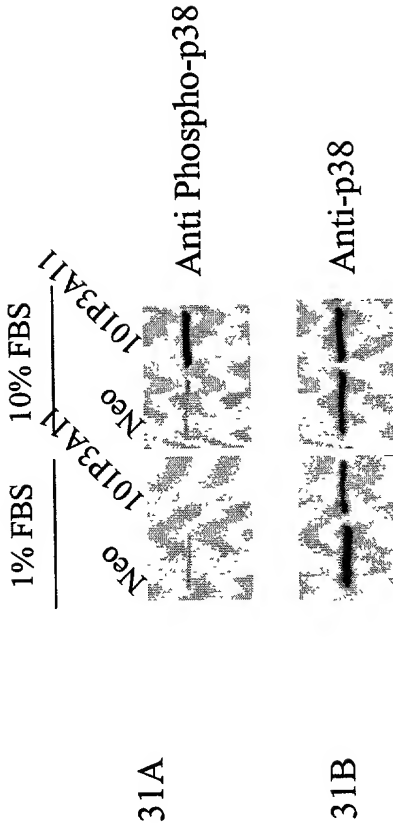
•Sodium orthovanadate induced increased ERK phosphorylation in PC3-101P3A11 cells relative to PC3-neo cells.

Figure 30: Inhibition of 101P3A11-Mediated ERK Phosphorylation
by AG1517



- The EGFR inhibitor, AG1517, inhibits EGF-mediated ERK phosphorylation in control and 101P3A11 expressing PC3 cells.
- AG1517 partially inhibits 101P3A11 mediated ERK phosphorylation in PC3 cells.

Figure 31A-31B: Activation of p38 in PC3-101P3A11 Cells



•Expression of 101P3A11 mediates p38 phosphorylation in cells treated with 10% FBS.

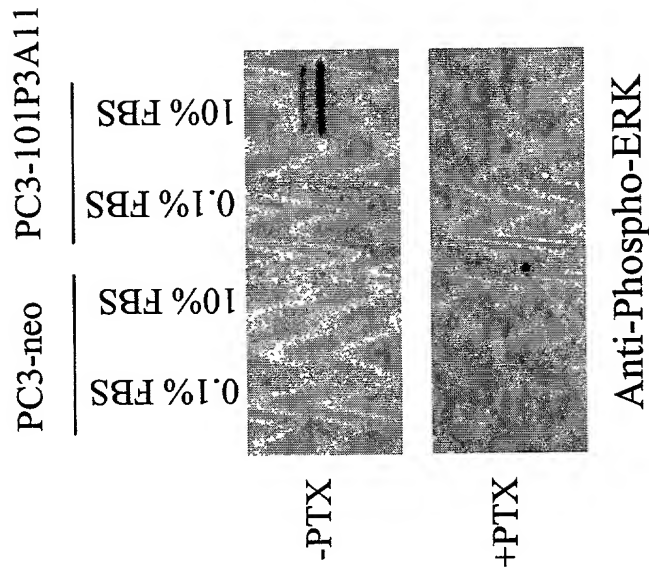
Figure 32: 101P3A11 Induced Accumulation of cAMP in PC3 Cells

Fold change in [cAMP]			
		PC3-Neo	PC3-PHOR
0.1%FBS	-PTX	1	4.302
	+PTX	1.403	2.577
10%FBS	-PTX	2.738	6.978
	+PTX	2.163	2.752

Fold Change in cAMP accumulation was calculated
relative to PC3-neo cells grown in 0.1%FBS

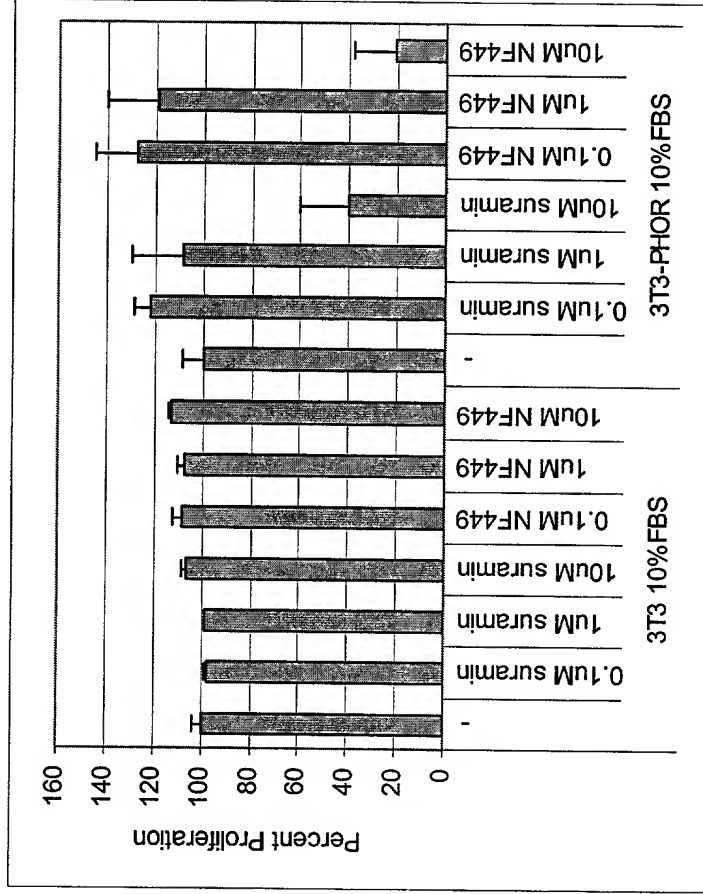
- Expression of 101P3A11 increased the accumulation of cAMP in cells treated with 0.1% and 10% FBS.
- FBS-induced cAMP accumulation in 101P3A11 cells was inhibited by pertussis toxin.

Figure 33: Pertussis Toxin Inhibits 101P3A11 Mediated ERK Phosphorylation



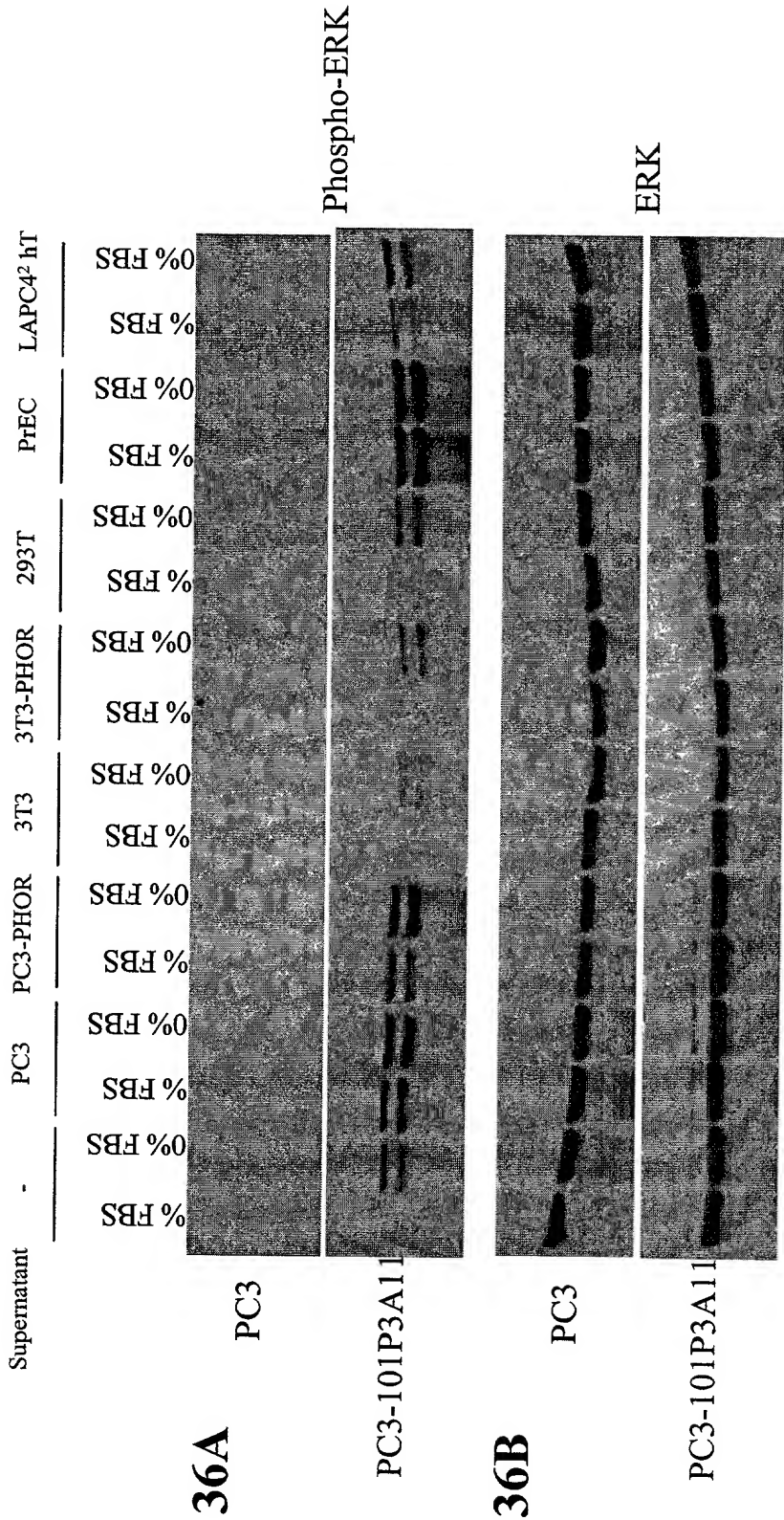
•Pertussis toxin inhibited FBS- mediated ERK phosphorylation in 101P3A11 expressing cells.

Figure 35: Inhibition of 101P3A11 Mediated Signaling by Suranim



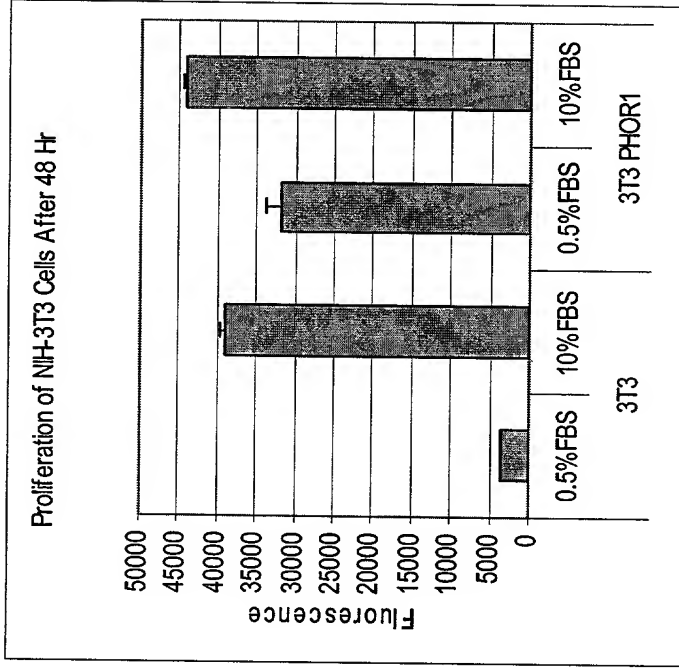
- Control NIH 3T3 and 3T3-101P3A11 cells were grown in the presence of absence of G protein inhibitors suranim and NF449. Proliferation was analyzed by Alamar blue after 72 hours.
- Suranim and NF449 inhibited the proliferation of 101P3A11 expressing but not control cells.

Figures 36A-36B: 101P3A11 Mediated ERK Phosphorylation By Conditioned Media



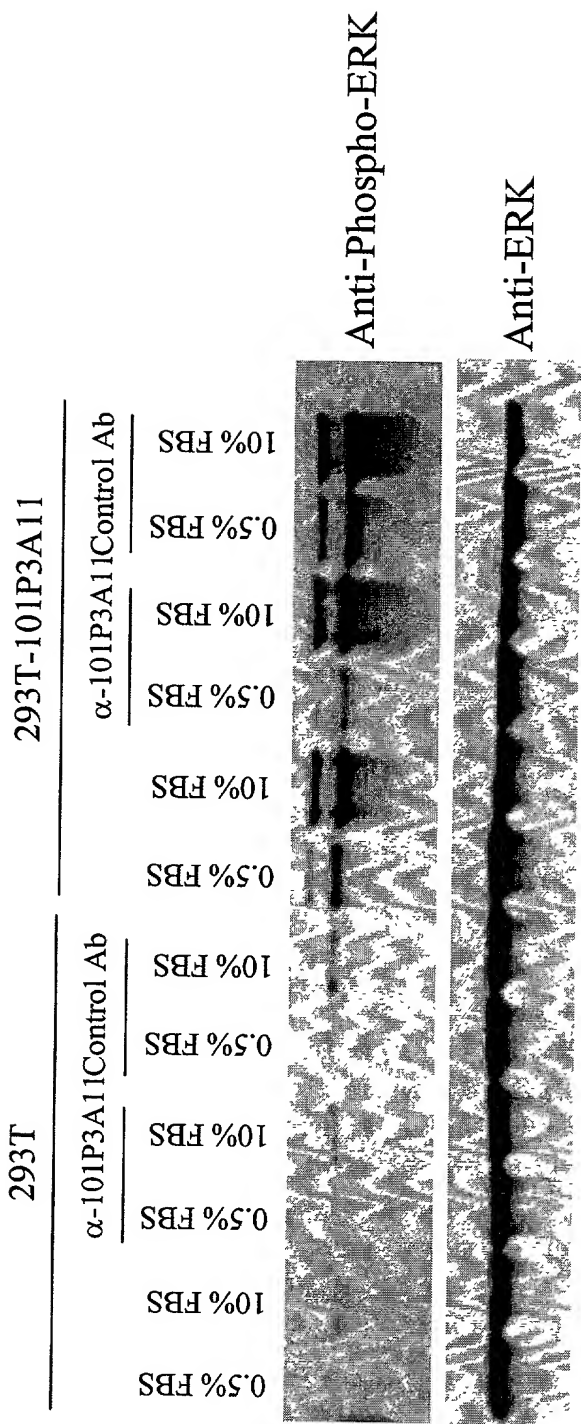
- Supernatants from PC3, PC3-101P3A11, PrEC and LAPC4² cells induce ERK phosphorylation in PC3 101P3A11 but not PC3 cells.
- Supernatants from 3T3 and 293T cells had little specific effect on ERK phosphorylation.

Figure 37: 101P3A11 Enhances The Proliferation of 3T3 Cells



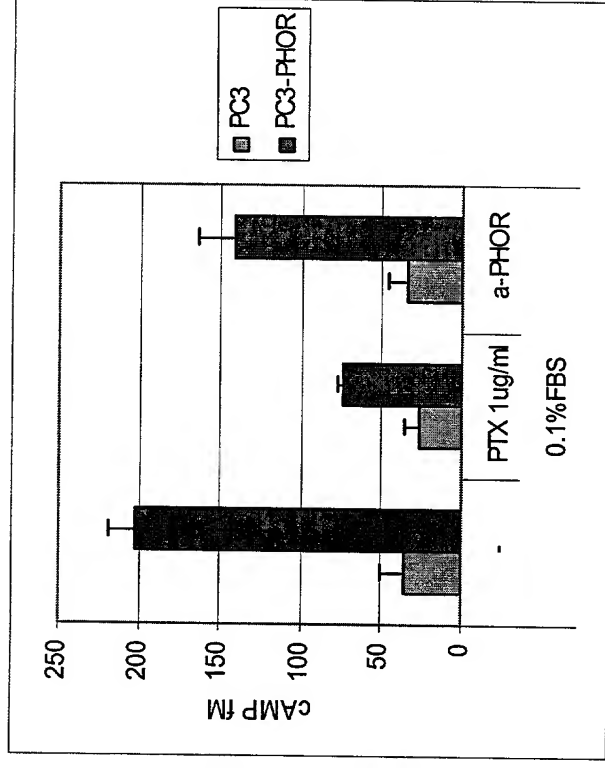
- Control NIH 3T3 and 3T3-101P3A11 cells were grown in the presence of absence 0.5 or 10% FBS. Proliferation was analyzed by Alamar blue after 48 hours.
- Expression of 101P3A11 induced a 6 fold increase in the proliferation of 3T3 cells grown in 0.5% FBS.

Figure 38: Inhibition of 101P3A11 Mediated ERK Phosphorylation by 101P3A11 Specific Antibodies



- Expression of 101P3A11 induced ERK phosphorylation in 293T cells.
- Anti-101P3A11 pAb inhibited ERK Phosphorylation in 293T-101P3A11 cells .

Figure 39: Anti-101P3A11 Ab Mediated cAMP Accumulation in PC3-101P3A11 Cells



Treatment	Fold Increase in cAMP	
	PC3	PC3-PHOR
0.1% FBS	1+ 0.42	5.73 + 0.47
PTX 1ug/ml	0.74+ 0.28	2.12 + 0.09
anti-PHOR	0.97+ 0.35	4.01+ 0.64

- Control PC3 cells and cells expressing 101P3A11 were treated with anti-101P3A11 pAb for 2 min and evaluated for intracellular cAMP content.
- The assay was performed in duplicate.

Figure 40A-40F

Fig. 40A. Prostate Cancer, 400X

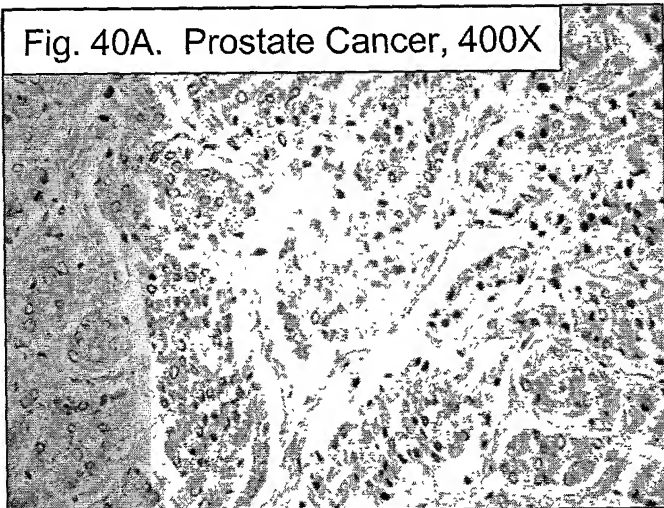


Fig. 40D. LNCaP, 400X

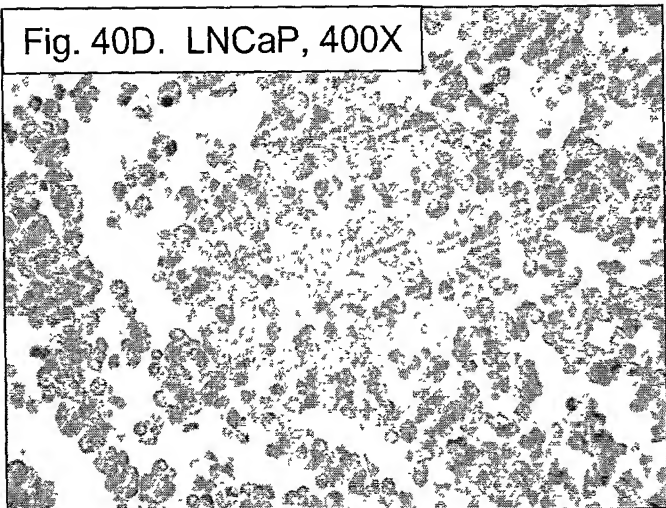


Fig. 40B. Prostate Cancer, 400X

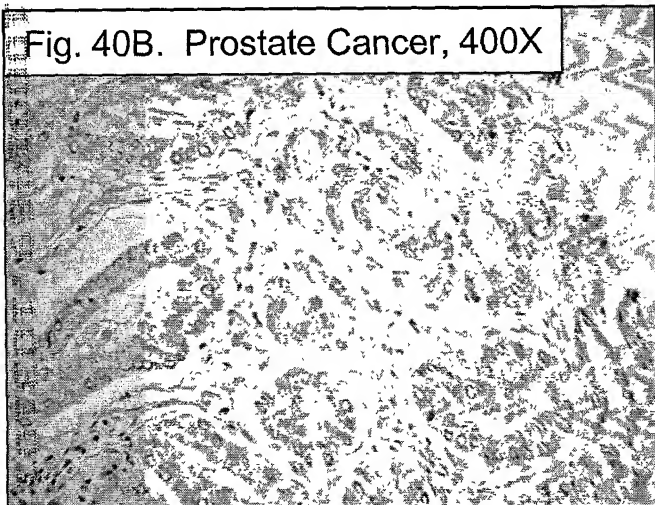


Fig. 40E. Prostate, 400X

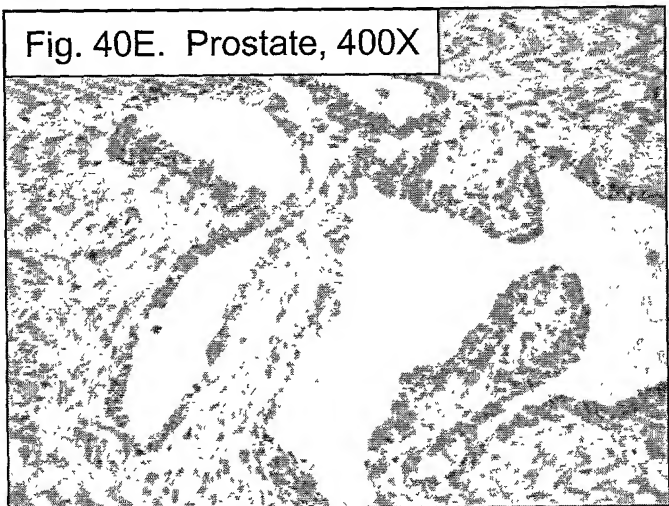


Fig. 40C. Prostate Cancer, 2000X

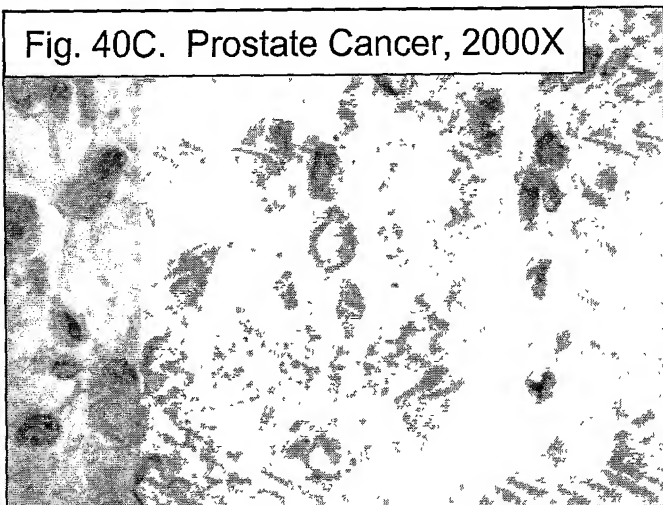
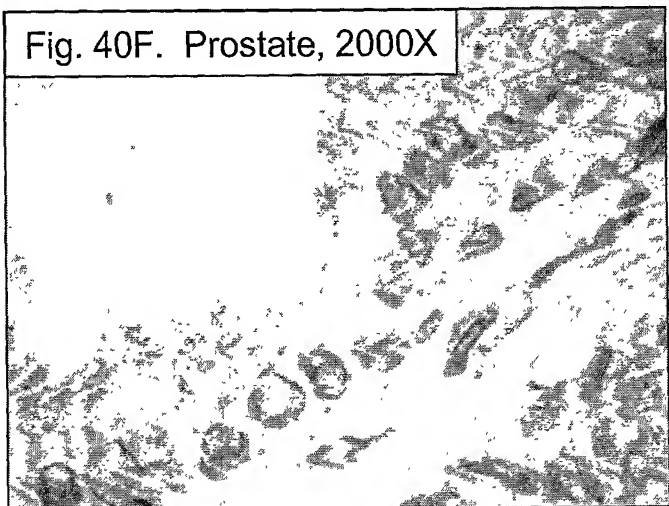


Fig. 40F. Prostate, 2000X



Title: NUCLEIC ACID AND CORRESPONDING PROTEIN
ENTITLED 101P3A41 USEFUL IN TREATMENT AND
DETECTION OF CANCER

First Inventor: Daniel E. H. AFAR, et al

Application No.: To Be Assigned - Docket No. 511582002420

Sheet 48 of 50

Fig.41A Prostate Cancer, 800X

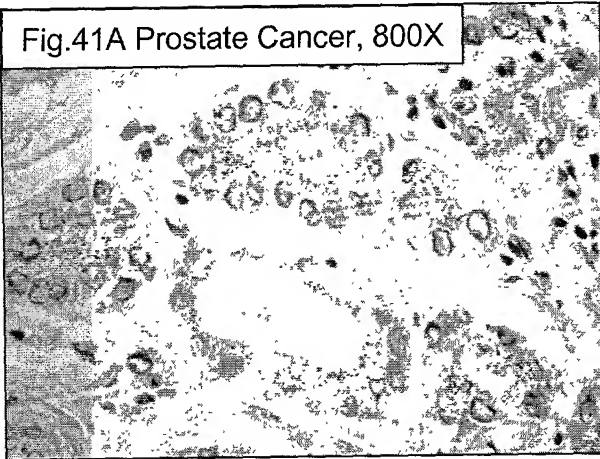


Fig.41B Bladder Cancer, 800X

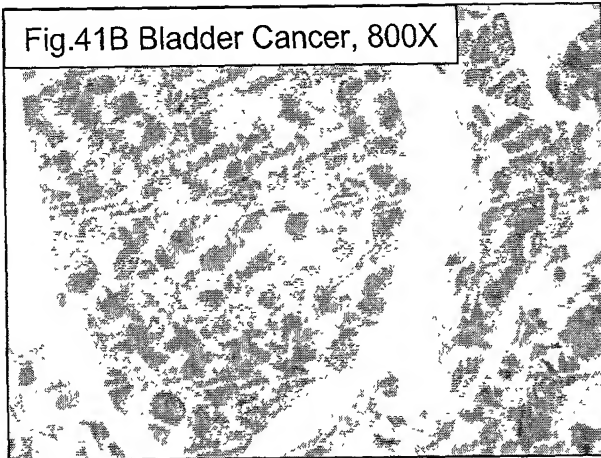


Fig.41C Kidney Cancer, 800X

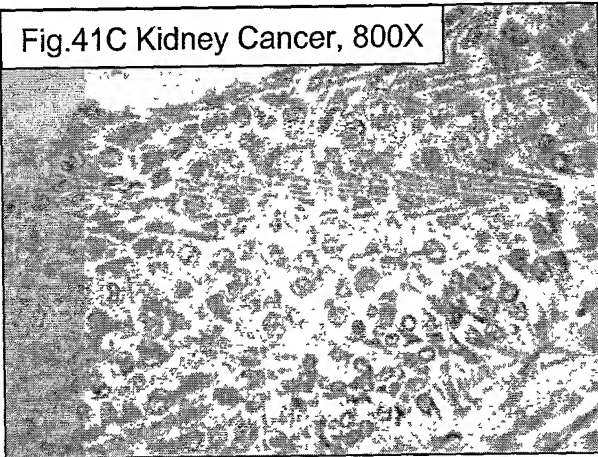


Fig.41D Colon Cancer, 800X

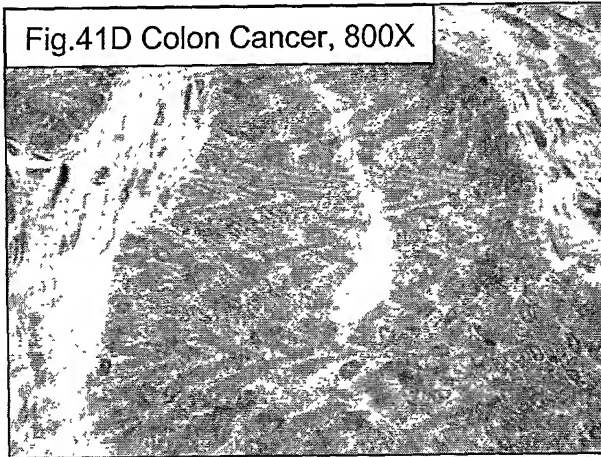


Fig.41E Lung Cancer, 800X

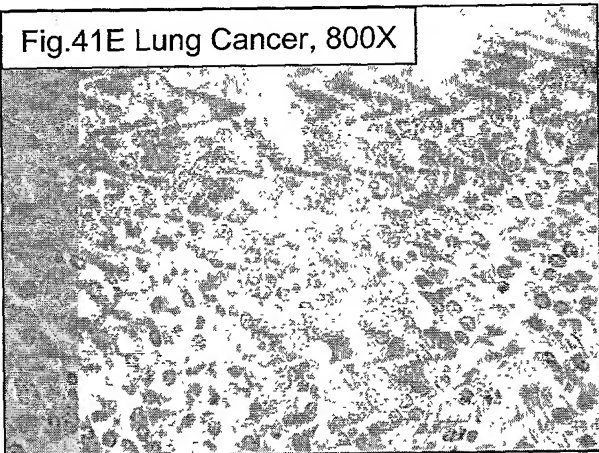


Fig.41F Breast Cancer, 800X

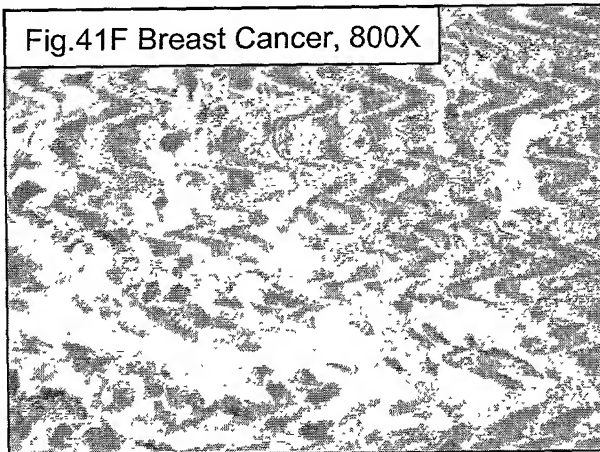


Fig.41A Prostate Cancer, 800X

Figure 42

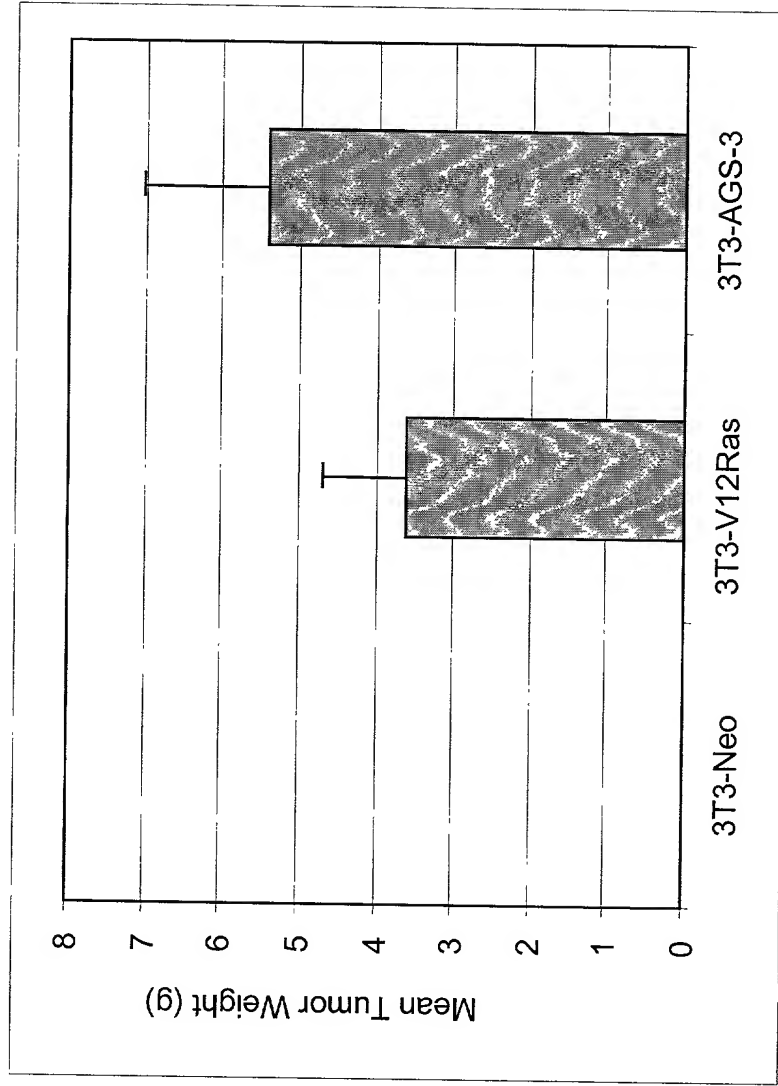
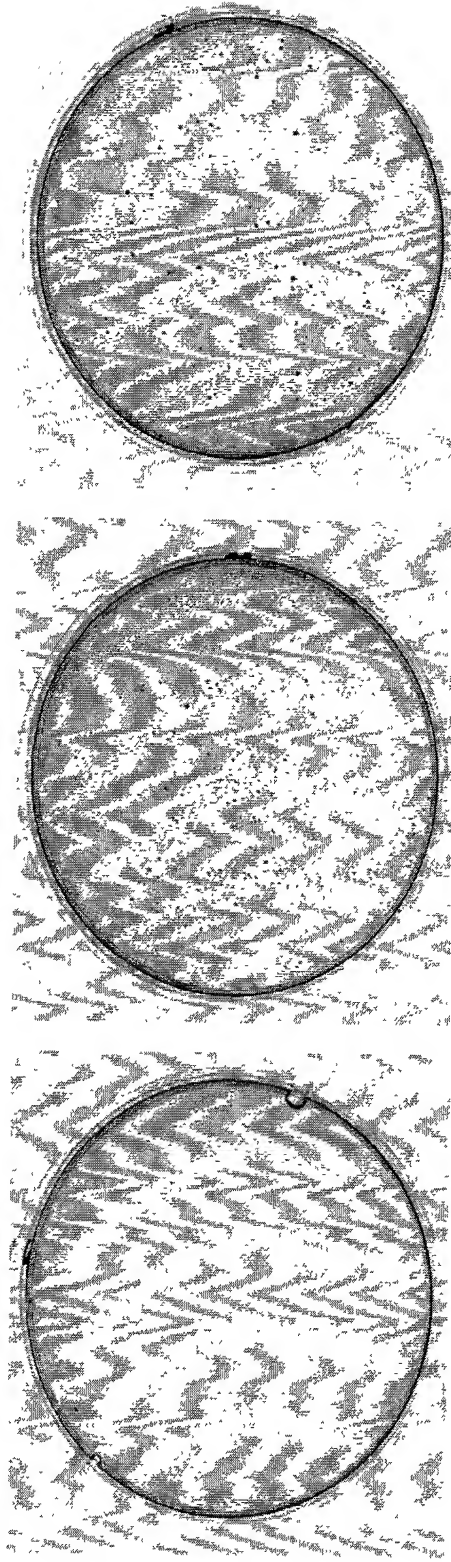


Figure 43



Neo

101P3A11

Ras

Cell Line	Colony number	
	Average	
3T3-neo	0.5	
3T3-101P3A11	686	
3T3-Ras	249	